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Research published scientific research aimed both economic development and clarification of the current economic phenomena and processes. As a result, conclusions and proposals offered by the authors address both academia - scientists, teachers, students - as well as decision makers. We emphasize the importance of scientific contributions, together with the clarity of concepts, methodologies and conclusions offered.

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PLENARY SECTION

ECONOMIC DEVELOPMENT OF BULGARIA AND ROMANIA IN THE POST CRISIS PERIOD

Iskra CRISTOVA-BALKANSKA[1]

Abstract

The success of the integration process of Bulgaria and Romania is reflected by their nominal and real convergence process. These tendencies are of special importance considering further economic development of Bulgaria and Romania, and the shortening of the economic distance with more developed economically EU countries. The real convergence process is important considering the future entrance of Bulgaria and Romania in the euro area. The contribution is trying to divulge the experiences gained in real convergence in both countries, the catch up process and the future prospects.

Keywords: Economic growth, FDI, economic convergence, catching up process, EU structural Funds

JEL Classification: F15,F21, F63

EU membership, economic growth and investments in Bulgaria and Romania

Bulgaria and Romania are considered with similar paths to market transition and integration to EU structures. However, they differ in size of economies, in some features associated with industrialization, different macroeconomic developments, because of the adopted strategic choices of monetary policies. The monetary and fiscal policies in Bulgaria, which adopted the currency board regime, have guided the country's economic activity to the private sector, which thus become the central point of economic shocks and mechanism. Discretionary policies applied by the Romanian Central Bank influenced the policies towards the accumulation of public finance deficit. Differences in monetary policies applied respectively in Bulgaria and Romania have had an impact on the entire economic and political system of the two countries.(Nenovsky et al.2013)

Despite the differences in monetary regimes, the integration of Bulgaria and Romania to the EU had the same positive impact on the realization of economic growth, driven by private consumption, the investment activities, the increase of export, the stabilization of the financial sector, and the decrease of the unemployed persons.

Bulgaria held, according to the currency board arrangement, strict financial discipline. Budget surplus has amounted to 3% of GDP. Financial discipline allows tax cuts, aimed at the attraction of investments into the economy from local and foreign investors, and the easing the tax burden on the population. Under the currency board, the lack of monetary policy is compensated by the accumulation of funds in Bulgarian National Bank (BNB), which were a buffer against the occurrence of a liquidity crisis and other external shocks. Banks' credit growth contributed to maintaining production and employment and for the expansion of the domestic consumption. The Foreign trade policy has been characterized by the rapid increase in imports at the expense of the slower increase in exports and the trade balance deficit of the current account balance was negative. The Increased consumption, investment activity, and the lower taxes allowed the maintaining a high current account deficit of the balance of payments. The main concerns about macroeconomic stability in Bulgaria came from the growing current account deficit of the balance of payments and the increase in domestic credit. Foreign direct investments (FDI) in Bulgaria also have increased in line with the increase in domestic consumption, which grew in Bulgaria by about 6.4%.

In Romania, FDI have increased, attracted by the structural reforms and the improving of business climate. FDI contributed to employment growth, which so far has been heavily dependent on long-term reduction of production in labor-intensive economic sectors of the Romanian economy. Attracting FDI in the Romanian economy allowed the inclusion of Romanian industries in European value chains network. This improves the structure of Romanian exports of goods with higher added value.

[1] Economic Research Institute, Bulgarian Academy of Sciences

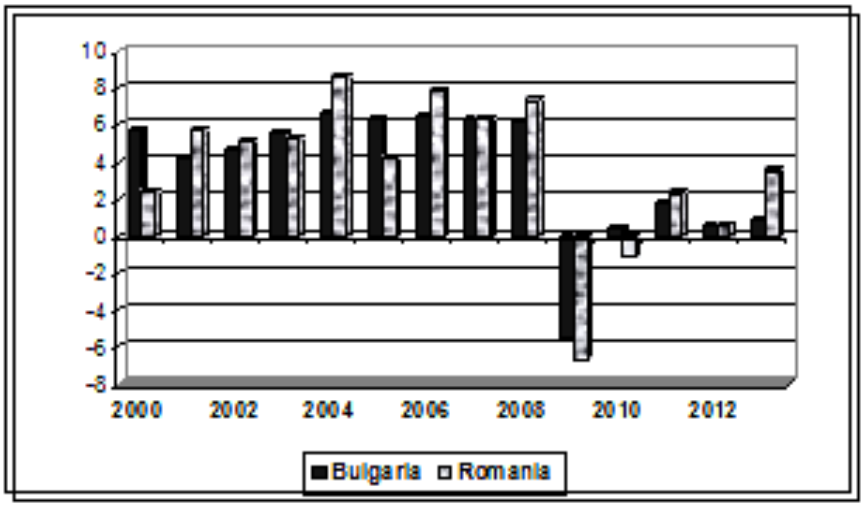

Figure 1. Real GDP Growth Rate of Bulgaria and Romania 1 Year % change (2000-2013)

Source**:** Eurostat data

Economic growth in Romania is 8.4%, decrease to 4.1% (2005) and in 2006 is increasing again to 7.2%. The main engines of the Romanian economic growth were the industrial activity, the construction and the agriculture. The average economic growth rate of Bulgaria and Romania averaged 6% per year, compared to 1.7% (2005) and 2.8% (2006) respectively for the EU-25. (Figure 1)

The favorable economic situation in EU is influencing positively growth of Romania and Bulgaria in the years 2006, 2007,2008.

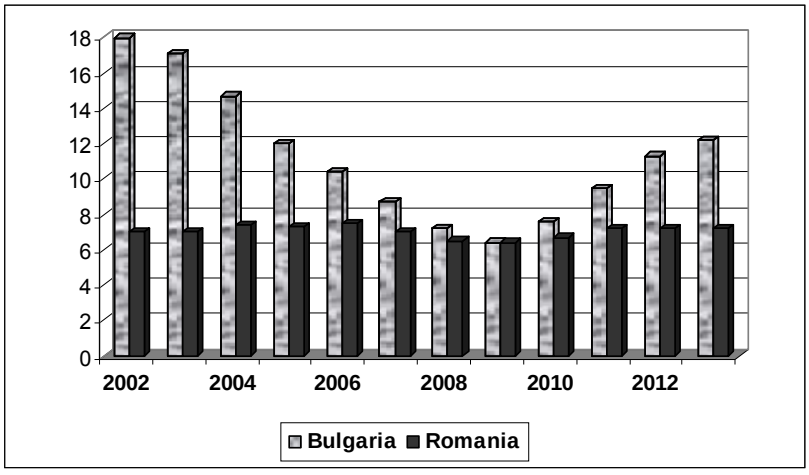

Figure 2. Unemployment rate - 3 year average %, 2002 2013.

Source: Eurostat

Unemployment rate in Bulgaria averaged 10.10% from 2003 to 2014, reaching 15.6 % in 2003 and 5% at the end of 2008. The unemployment rate in Romania averaged 7.01% from 2006 until 2014, reaching 8.10 % in March of 2010 and a record low level of 5.40 % in September of 2008. (Figure 2)

FDI is an indispensable part of the economic development strategy. FDI stock is between 20-30% of GDP in Bulgaria in 2005-2008 and around 10% of GDP in Romania (2004-2008). FDI stock is between 20-30% of GDP in Bulgaria in 2005-2008 and around 10% of GDP in Romania (2004-2008). In Romania this process accelerate after 2004. Most of the total FDI stock comes from the EU countries, and about 50% of the total stock stems from just three countries: Austria, the Netherlands and Germany. The privatisation-related FDI, which have been significant in sectors like public utilities (gas, electricity, telecommunications), the banking and construction sector, represent half of total FDI from. Austria, Netherlands and Germany.

Romania and Bulgaria have been attractive for foreign investors investing in labor intensive production, while the most advanced “Visegrád” countries (Poland, Czech Republic, Slovakia, Hungary) were most preferred destinations for high technological investments. (Figure 4)

The economic crisis discontinued the tendency of economic growth and this changes the macro economic balance in Bulgaria and Romania. The two economies suffered from the impact of the global economic recession more than some countries in Central Europe (Poland). GDP in Romania fell in 2009 by 8% and in Bulgaria with 5.5%. (Figure 1) The unemployment rate in Bulgaria decreased to 11.40 % in the second quarter of 2014 from 13 % in the first quarter of 2014. The unemployment rate in Romania remained unchanged at 7.10 % in August of 2014 from 7.10 % in July of 2014.

Gross fixed capital formation (GFCF) decreased more in Romania in 2006 and 2007, and in 2008. The GFCF in Bulgaria increased in 2008, was insignificant in 2009 and after that started to growth. (Figure 3)

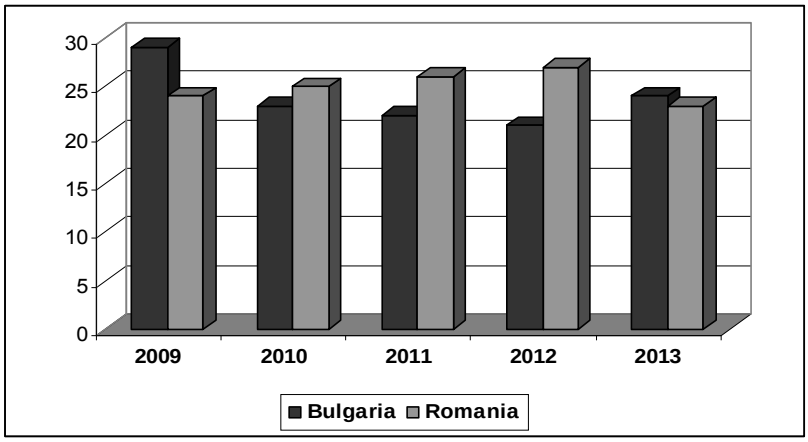

Figure 3. Gross Fixed capital Formation (GFCF) as % of GDP for 2009 to 2013.

Source: World Bank data

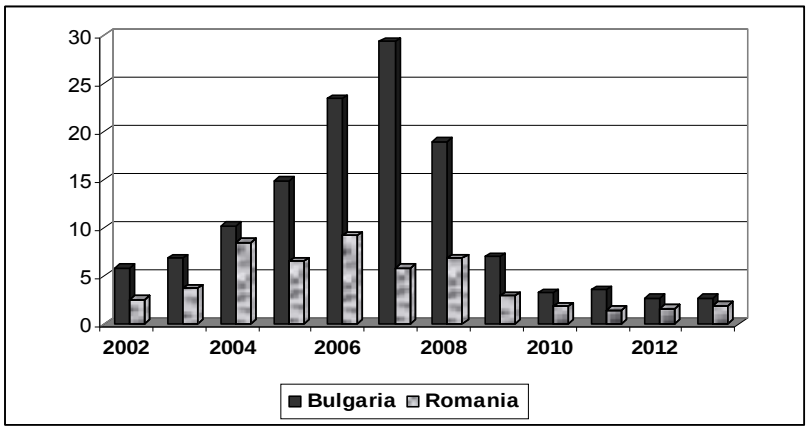

Figure 4. Inward FDI as a % of GDP of Bulgaria and Romania 2002-2013

Source: Eurostat, World bank data

The contraction of FDI has led to the deterioration of financial conditions in domestic credit. The high cost of financing of the economy and the further deterioration in the economic outlook has forced banks to limit lending. Bulgaria and Romania, whose GDP growth was fueled largely by foreign capital inflows, felt sharply their reduction, because the two countries relied on foreign capitals to finance credit expansion. This explains to some extent sharp contraction of output in the two countries. In Romania (and also in the Baltic countries) the credit growth fell by an average of more than 35% between the last quarter of 2008 and third quarter of 2009. (ECB, July 2010, p.88). Conversely, countries with greater reliance on the domestic sources of financing had not been so affected by the acute fall in loans to finance the economy.

In Romania has a stable outlook and real GDP growth in 2013 is 3.5%, thanks to exports of industrial production and good agricultural harvest. However the economic growth is expected to slow in 2015 to 2.5%.

Three years since the IMF and the EU financial assistance the Romanian economy achieved some positive economic achievements. The financial assistance program improves of the effectiveness of production and the rigidity labor market was overcome with the amelioration of economic growth. Main engines of growth are net exports and possibly boosting domestic demand. The credit is still relatively low in 2013 and this is due to abstinence from consumption of households and the need to reduce the debt of the banking sector, after the deterioration of the securities during the crisis. Since the entry into EU, the governments one after another, all had applied rigorous management of public finances and until 2009, the Bulgarian budget was in surplus then in response to the crisis the deficit reached 4.3% in 2009 to 2.1 in 2011. The weight on the total public debt (15.3% of GDP in 2011) is bearable and low compared to the EU average,

Bulgaria's economy expanded by 0.9% in 2013, while GDP growth for 2012 was revised marginally down to 0.6% of GDP. Private consumption and investment contracted in 2013, while exports and public expenditure supported the modest economic growth. Growth is projected to broaden and increase gradually to 2.0% in 2015, as domestic demand is forecast to recover and complement exports, which have been the main driver of growth thus far.(Figura 1) The increase in domestic consumption and investment will pull up the imports and may turn fragile the increase of net exports. The surplus in the current account of the balance of payments (BOP) reached 2% of GDP in 2013, but is expected to decline by 2015. In Bulgaria household purchasing power fairly increases relative to wage growth combined with a low inflation. Interest rates decline improve credit conditions. However, households are cautious in spending money.

There has been some improvement in consumption, despite that private consumption dropped by 2% in 2013. Investments are recovering, but they are still low. Investments are supported by the relatively stable banking sector, however tension in the financial system appear with the closure by the Supervisory Bodies of the BNB the Corporate Commercial Bank.

Romania has taken actions towards the participation in the Single Resolution Fund and will take the necessary steps to join the Bank Union. These reforms include the privatization and the measures aimed at boosting sales performance, the reform of public investments, the payment of arrears and the improved EU funds management system. These reforms underpin fiscal consolidation and nominal convergence as well. In parallel, the structural reforms required the restructuring and improvement of debt management. In Romania, the effects of the economic slowdown in EU economies and the debt crisis have tarnished the upturn. The credit to enterprises and households is continuing to be scarce because the foreign affiliates of Greek and Austrian banks are not ready to ease the financing of the Romanian economy. The public sector salaries are frozen after been devaluated by 25%. Romanian economy is also in an adjustment phase and not still in the process of convergence. In parallel, the important economic progress in 2013 and the outlook of preserving this trend in the upcoming years give confidence that Romania will made important progress with structural reforms, which helps meeting the real convergence criteria.

Economic convergence or divergence and economic development

Seven years after the accession into the EU, Bulgaria and Romania continue to substantially lag behind in the process of catching up with the more developed countries in Europe. According the report on "European Catch up Index", Bulgaria is on the bottom of the overall ranking among the EU member states as well as in four categories of the index . In some indicators of quality of life, the country is behind neighboring candidate countries like Serbia and Montenegro. Bulgaria occupies 29th position among 35 countries in the ranking by overall score, sliding one notch down in comparison to the 2011 index. Economy is the category where the country performs the best in relative terms at 28th position. Among the individual indicators, Bulgaria performs well in the level of government debt. (Second ranking after Estonia.) And the worst ranking is for energy efficiency with a score of 35. Regarding the processes in Europe the index registers the effects of the economic crises in Europe and outlines the possible groups in a Europe of different speeds. The most lagging behind countries are Bulgaria and Romania. This confirms the tendency for an increasing divide between the West, the Central and the Southeastern Europe in economic standard and accumulation of wealth. For them is very difficult to become competitive economies soon , given that the standard of living, level of production, training of workforce and professional realization, financing of R&D and innovation need deep structural reforms.

The catch-up and convergence process can not be regarded as an automatic result of the integration of Bulgaria and Romania in the EU. The catch-up process was accelerated after the EU integration; however the incomes have not been substantially increased.

Compared with other EU NMS, wages growth in Bulgaria appears high even when they are adjusted towards the relatively high productivity growth. In 2007-2009 unit labor cost (ULC) of Bulgaria has deteriorated and the ULC-deflated real effective exchange rate (REER) has appreciated. (Figure 5) Nevertheless, while wage cost competitiveness has deteriorated rapidly, other indicators of external competitiveness appear more favorable. Notably, a solid rise in global market shares suggests that rising unit labor costs were compensated for by non-cost factors like quality improvements and temporary factors like favorable export price trends in world markets (European Commission, 2012).

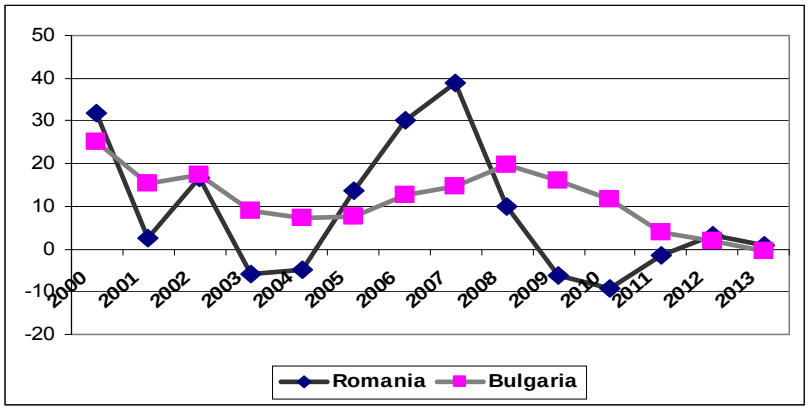

Figure 5. Real effective exchange rates - Euro area trading partners - 3 year % change

Source: Eurostat

Also, while the wage rates appear rapid, the starting position was relatively low. Bulgarian external competitiveness might be helped by having the still-lowest wage level in the EU. In 2013, the average hourly labor costs in EU 28 (excluding agriculture and public administration) were estimated to be €23.7 and €28.4 in the euro area (EA17). This average masks significant differences between EU Member States, with the lowest hourly labor costs recorded in Bulgaria (€3.7), Romania (€4.6). In purchasing power standards, wages in Bulgaria amount to 37% of the EU average, at par with Romania.

At first sight, the lower hourly labor costs in Bulgaria and Romania seem to be a strong competitive position relative to other higher-wage EU countries. The level of productivity in Bulgaria is the lowest in the EU, with nominal GDP per capita head at 20% of the EU average, or 45% when adjusted for purchasing power standards. (Figure 6) Competitiveness does not yet seem to be strongly affected by the ULC increases, wage growth over 2009-2011 is not in line with the labor market equilibrium, as manifested by rising unemployment. In the future, wage levels will most likely converge towards the EU average as productivity levels also converge.

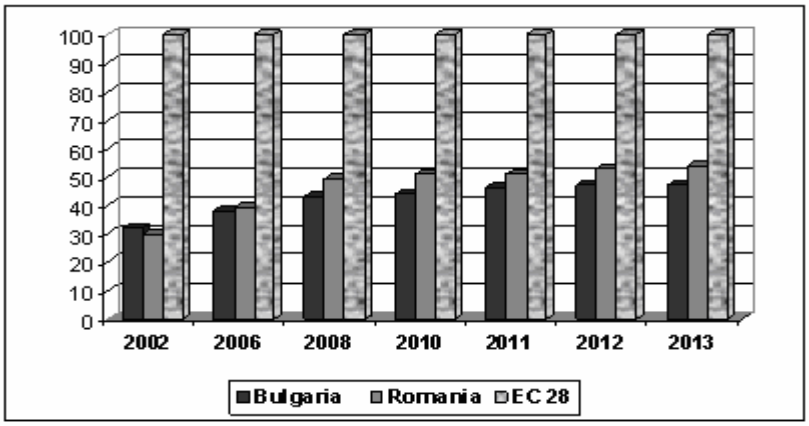

Figure 6. GDP per capita in PPS, Index (EU28 = 100)

Source: Eurostat

Real convergence inside and outside the euro area is a determining factor for economic strategy and policy for most of the NMS in the medium term. The equilibrium real exchange rate appreciation (price level convergence) is considered a natural consequence of the economic catch-up (De Grauwe and Schnabl (2005). Appreciation of the real exchange rate, which depends on monetary policy and exchange rate levels, could be implemented by the nominal exchange rate and its appreciation and / or increase in domestic inflation. The rate of convergence of incomes, increased domestic demand than GDP and the exchange rate regime are significant determinants of the price level of the dynamics of convergence of prices. (Darvas and Szapáry (2008)).

In the short-term factors such as the nominal exchange rate and its movement, the effects of changes in food prices and general global resources may temporarily divert inflation trends that support the convergence of prices. Some structural factors such as trade liberalization, competition in product markets may have similar effects. Not all differences in inflation would be consistent *with the need to need*. At the same time not all inflationary differences might be consistent with the need for ensuring competitiveness and external stability of the economy in the medium term. In some NMS unsustainable domestic demand causes high inflation. The processes were fueled by very optimistic expectations of economic agents or inadequate economic policies.

Looking at the price convergence, over a longer period back, consumer price inflation in Bulgaria has been volatile, ranging from 0.4% to 12.0% on an annual basis over the past ten years The increase in inflation in 2004-08 reflected adjustments in administered prices, the harmonisation of excise duties with EU levels, a series of supply-side shocks and increasing demand pressures. The sharp fall in inflation in 2009 was partly a result of lower commodity prices and the contraction in economic activity. In 2010 and 2011 inflation gradually picked up again, to 3.0% and 3.4% respectively, largely reflecting higher commodity prices.The easing of commodity price pressures combined with weak internal and external demand resulted in the gradual decline in inflation in 2013.

Insufficient EU Funds in Bulgaria and Romania The Structural Funds and the Cohesion Fund of the EU are considered to have an impact on the "catching up" process. By their size, they can stimulate and have an important impact on economic development of the two countries. The Funds can be quickly committed and absorbed by the market and reduce the unemployment. In Romania, these funds could represent each year 3.8% of GDP increase.

The launch of the operational programs was difficult in both countries, as the lack of experience and lack of especially formed adequate administrative and legal capacities are the main causes. Projects began to be implemented in Bulgaria in early 2009. As for the commitment rate in January 2012, they amounted to 15% in Romania and 19% in Bulgaria. These are the lowest rates in the EU27. The absorption rate would amount to respectively 19% and 4%.

Everything has already been said about the irregularities in the tendering and certain bad practices that come from the lack of control from the management authorities (some of them have also lost the approval of the European Commission). The payments have been suspended in Romania in 2011 and 2012, because of irregularities in a development program of human resources funded by the European Social Fund (ESF). This resulted in six months interruption and Romania has to improve the measures and the operation of the system of management and control of the program. The low level of absorption of European funds shows the difficulties of Bulgaria and Romania, because of the rules of law are not completed and the administrative and the judicial officials are not reliable yet. In 2011 and 2012 the performance of the utilization of funds had increased in Romania and Bulgaria because it has been necessary to demonstrate a more convincing behavior when have been negotiating the new EU funds allocations for 2014-2020. IBulgaria has consumed only 19% of the allocated sums during the period 2007-2013. Absorption of EU structural and cohesion funds in Romania increased in 2013 and reached 33.7% utilization of funds by the end of December 2013.

For 2014 – 2020 EU Structural and Investment Funds allocated to CEE 6[2], EUR 167 bn over the half of the total EU funds. Romania and Bulgaria, as the least developed members of the EU, were allocated a lower total amount of EU funds than they should have been. To balance that, the two countries will also receive financial assistance from other European programs, such as the Common Agriculture Policy.

[2] CEE6 – Czech Republic, Slovakia, Hungary, Romania, Croatia, Poland.

An expectation for the deepening of collaboration and strengthening of economic relations of Bulgaria and Romania is the EU cross-border co-operation programme, launched in 2007. The programme is expected to have a significant impact on economic development, the environment and mobility in the cross-border region. The eligible area is characterized by marginality and isolation from the economic and decision-making centres. Borders limit economic, social and cultural exchanges and affect the joint, efficient and effective management of the territory.

Conclusions

The continuation of the reform process, in Romania particularly the fiscal consolidation process, based on the preventive financing agreement concluded with the EU, IMF and the WB can bring coherence to the macroeconomic and financial policies, thus adding to the consolidation of investors' confidence and preserving the macroeconomic and fiscal stability. In the medium run, the specific objective of the budgetary policy is to further adjust the budget deficit, with the planned targets situated at 2.2% of GDP in 2014 and below 2% of GDP for the interval 2015-2017 (according to ESA). Broad balanced macroeconomic development for Romania is downside risks to economic growth which include the effects of faster deliveraging by households and by financial institutions. In terms of economic development it is necessary to attract effective FDI and to increase the effective absorption of European funds. However, the imbalances persisted and Romania still faced the pressure for the implementation of structural reforms on the basis of the stabilization of public finances.

From a macroeconomic perspective, the most serious risk for economic development and the catch up process stems from less-expected economic recovery in Bulgaria. The household consumption remains low and it is due to contracted Bulgarian labor market and low consumer confidence. However, in periods of weaker domestic demand the Bulgarian economy has been able to partly compensate this with higher net exports. The decline of FDI entries in Bulgaria can be stimulated by the improvement of EU Structural Funds absorption rate.

If Bulgaria and Romania achieve a higher level of utilization of EU funds, they will be able to reduce the economic gap with the EU Central European states. . In the long term, Bulgaria and Romania have a long road ahead in terms of improving their still low absorption capacity. To achieve that, they need to significantly reduce bureaucracy, introduce more transparent processes of project selection, and establish closer regional cooperation. Economic catch-up and development depends largely on the implementation of policies that support economic growth and macroeconomic stability in the context of EU objectives. This will be a difficult task in the context of increasingly intense international economic and political environment.

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REMITTANCES CONTRIBUTION TO SUSTAINABLE ECONOMIC DEVELOPMENT: CASE OF REPUBLIC MOLDOVA

Alexandru STRATAN[3]

Abstract

Despite the magnitude and in, some cases, the major role remittances do have in many economies all over the world, the monitoring and estimation of these flows, as well their impact on home economies pose a lot of challenges for specialists in this area. We found that, concerning Republic of Moldova, no data exists on the real volume of the money transfers made by Moldovan emigrants to the country. All data rely on indirect measures produced by local and international institutions and think tanks that can be used to make an approximation of the volume of these flows, their structural characteristics and spillovers on country's social and economic development. The main sources in this context are: the Balance of Payments elaborated by the National Bank of Moldova that is considered the most relevant source to make an estimation of remittances' volume; the Household Budget Survey carried out by the National Bureau of Statistics (NBS) that presents data on remittances share on resident households income.

Keywords: economic growth, exports, exchange rate, imports, investments, inflation, remittances

JEL classification: F24, F43, E24

Introduction

Migration exists for a very long time. However its dimensions and the great impact it has on the home country of migrants, through the money they transfer to their families, relatives, friends, term known in existing literature as remittances, makes it a topic of special interest for many researchers. In Republic of Moldova remittances became a very discussed and analyzed subject, taking account that the country ranks among the economies with the highest share of remittances in GDP. More than that, this external economic flow, unlike FDI, external trade and others, seems to have a significant impact on economic growth.

One of the most relevant mean by which migration is supposed to have a great impact on the national economy are remittances.

Remittances, as the literature clearly shows, generally have a multilateral impact on key aspects of development. Although the migration process in Republic Moldova has been studied, much less attention has been paid to remittances as a complex phenomenon.

Description of the problem

Within the present work have been made an attempt to capture the positive and negative spillovers migrants' remittances may have on country's socio-economic development.

Even from the soviet period, the Republic of Moldova was involved in migration flows within the Soviet Union, witnessing various forms of labor migration. The mobility of Moldovan people within the USSR was mainly determined by people searching for higher revenues in other regions of the Soviet Union, such as the Far East, Siberia and the Far North. At the same time, inhabitants of other soviet republics used to come to Moldova to participate in the country's industrialization process. Both volunteer and non-volunteer migration strategies were used for this purpose (Zwager, Gressmann, Sintov, 2010).

The increased complexity of the customs control procedure, as a result of the visa regime introduction, in tandem with the balanced prices in the former communist states, decreased the profitability of commercial migration for individual migrants. As a consequence, the commercial migration was replaced gradually by the labor migration after 2000 (Mosneaga, 2009), boosted by the low standards of living and lack of means of subsistence determined by extremely small salaries, due to a low demand.

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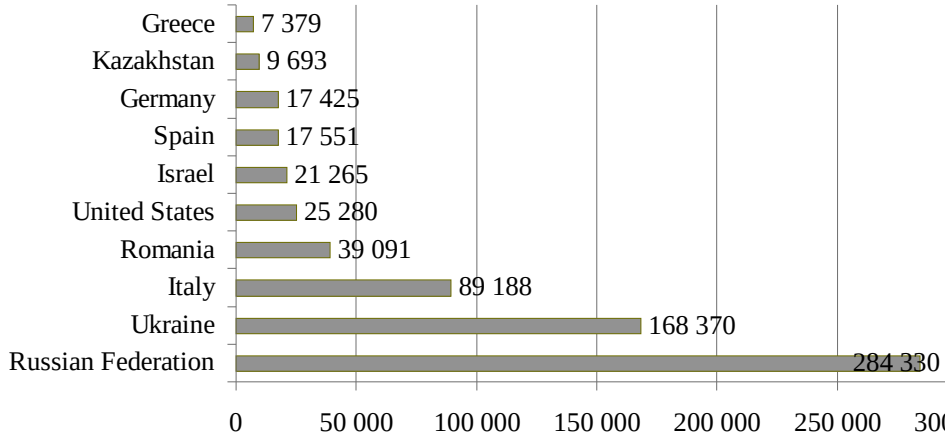

Figure 1. Emigrants stock in top 10 countries of destination, 2010
Source: World Bank, Bilateral Migration and Remittances Database, disposable at: http://www.worldbank.org/html/extdr/thematic.htm

The connection between migration and the social-economic state of migrants on their health status shows that at the study moment the migrants group had the highest employment rate on the labor market, with 77.3% of them being employed fully or partially (IOM Report, 2010). Another differential aspect is that most migrants identified themselves as employed abroad (61.9%). In comparison with them, the employment rate of the family members that do not receive remittances was 43.6%, with the lowest employment rate among the family members that receive remittances - 38.5%. In terms of age structure, the migrants group is much younger, two thirds of them being under the age of 40 years. The average age is 36 years in case of migrants, 43 years in case of family members that receive remittances, and 47 years in the third group.

The same study shows that 6.5% of those who avoided seeing a doctor abroad stated that they were afraid to be seen by someone going to the doctor, most probably by representatives of authorities. The migrants, especially the illegal ones, are afraid that the employer will not employ them or will dismiss them when they hear about their health problems. Money is another aspect. The problem is not only the fees for medical services, but also the fact that one or even several working days might be lost when seeking medical care - a loss that a migrant cannot afford, as his/her main purpose is to earn money.

Methodology and data sources

The main sources in this context are: the Balance of Payments elaborated by the National Bank of Moldova that is considered the most relevant source to make an estimation of remittances' volume; the Household Budget Survey carried out by the National Bureau of Statistics (NBS) that presents data on remittances share on resident households income.

In spite of the fact that remittances inflows are very difficult to be estimated, due to the complexity of the phenomena, some data sources exists that can be relevant in analyzing them. The main source in this context is the Balance of Payments that is used most often to account the value of remittances, it being considered as well the most reliable. The BOP is elaborated by the National Bank of Moldova and published quarterly and annually online4.

In the Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (BPM 6) and International Transactions in Remittances: Guide for compilers and users (IMF, 2009), IMF proposes new recommendations on estimating personal remittances. However, taking into account that NBM is still elaborating the Balance of Payments based on the fifth edition (except the SDR allocations item that is recorded according the Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual) (NBM, 2010) recommendations, remittances in Republic of Moldova are calculated taking into consideration the following three components of the BOP:

[4] http://www.bnm.md/en/balance_of_payments

- Personal transfers (component of the current account). These transfers are one direction transfers and consist of current transfers made by migrants who are employed in new economies and considered residents there;
- Compensation of employees (component of the current account). The chapter includes the income of border, seasonal, and other short-term workers who work in an economy where they are not resident as well as the income of resident workers who are employed by a nonresident entity in the home country;
- Migrant transfers (component of the capital account). It refers to capital transfers of financial assets of migrants while moving from one country to another and intending to stay more than a year (Reinke, 2007).

Remittances are defined as "household income from foreign economies arising mainly from the temporary or permanent movement of people to those economies." (IMF, 2009) A similar definition can be found at International Organization for Migration (IOM) that associate migrant remittances to monetary transfers that a migrant makes to the country of origin or in other words, financial flows associated with migration. Considering the above definitions and the existing methodology for evaluating remittances at the national level, some shortcomings can be identified:

1. First of all, the remittances inflows counted according the BOP accounts reflect only the official transactions, while a great part of remittances' inflows are supposed to take place through informal channels;

2. Into the compensation of employees category are included as well wages received by residents working in nonresident organizations in the home country, embassies etc., that cannot effectively be qualified as migrants. As well, the total amount of employees compensation is recorded within this subcategory, it may be not remitted entirely in the home country;

3. Personal transfers include all individual to individual transfers between residents and nonresidents, so they are not limited to migrants' transfers that can overestimate the volume of remittances.

Results obtained

Another link between migration, training system and education and labor market outlines that there are relations of cooperation between the international and local organizations, aiming at providing theoretical and technical assistance to the returned emigrants with the view of developing their entrepreneurial skills. As a rule, the returned migrants do not have practical knowledge to start up a business and need training in accounting, management, marketing and legal issues.

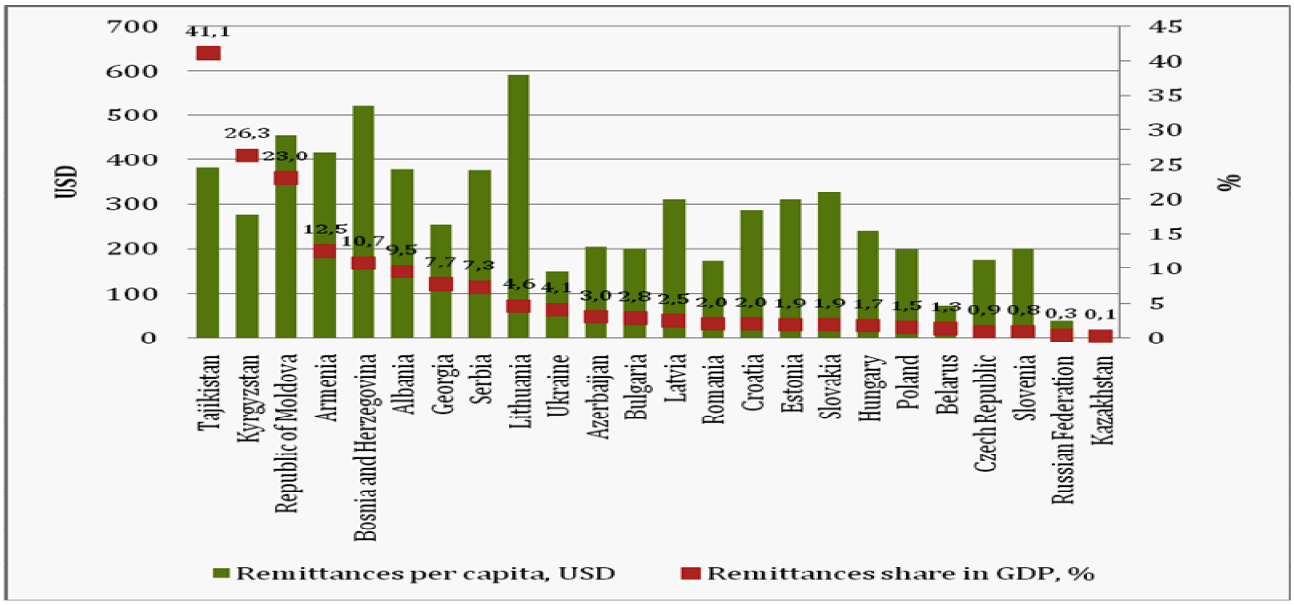

Figure 2. Comparative aspects regarding the remittances' share in GDP and their per capita value in the countries from Eastern Europe and Central Asia

Source: UNCTADSTAT, http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx

Omar Mahmoud et al. (2011) analyze the impact of emigration on the electoral results in the Republic of Moldova. The authors test the hypothesis that the emigration to West decreases the number of supporters of the Communist Party. For this purpose, authors analyze the correlation between the voting results at the parliamentary elections of 2009 and the emigration rates (separating the emigrations to the East from those to the West) at the community level. The analysis results show a significant negative statistical correlation between the votes for the Communist Party and the number of emigrants to the West: the communes with more emigrants to the West have voted to a lesser extent for the Communist Party. This analysis suggests that the countries of destination could accelerate the rate of political changes abroad through specific migration policies (Berlinschi and Clipa, 2011).

Republic of Moldova ranked among the leader economies in the world as concerns the remittances share in GDP and their per capita value in 2011.Also should be mentioned that since the second half of the last decade Moldova has witnessed a noticeable decrease on its remittances share in GDP. In the first half of the last decade remittances increased at a remarkable annual average of 42.5%. Since 2004, excepting the 2009 crisis year when a drop of 36% have been recorded, they have continued to increase, but at slower rate, along with a moderation or even decrease of migrants outflow in some years.

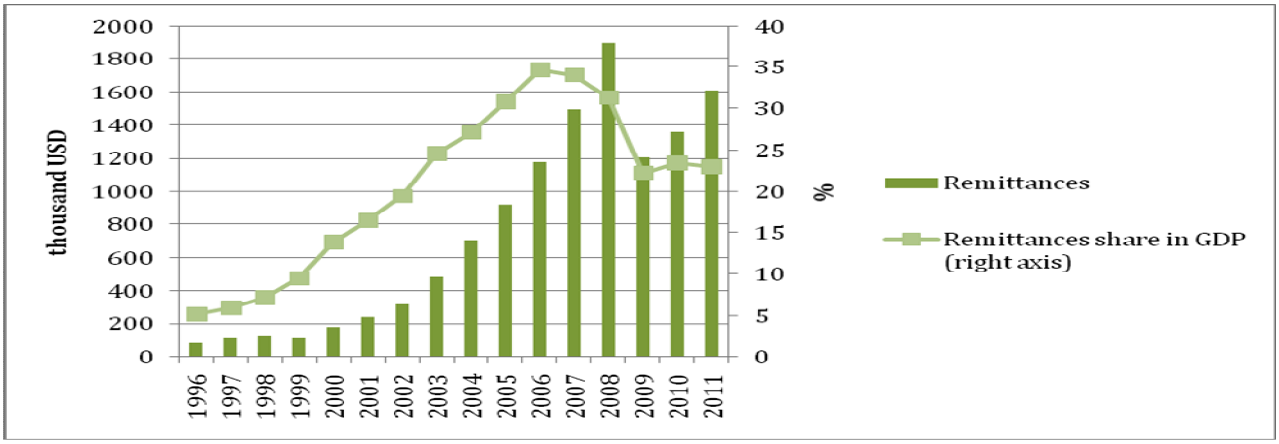

Figure 3. Trend of remittances inflow to the Republic of Moldova

Source: National Bank of Moldova and National Bureau of Statistics of Republic of Moldova

Remittances represented in the last years an important inflow of foreign currency in the economy – their value being significantly higher than FDI and official development assistance inflows, and according to 2011 data constituting 72.5% of exports value and almost 51% of the FDI stock. More than that, due to their relative rigidity to the external shocks, remittances seems to alleviate the negative evolutions of other flows of foreign currency that are more volatile.

Among studies dedicated to relationship between remittances and economic growth there are no common point of view. The main debates about the impact of remittances on growth refer to the use of remittances for productive investment that would contribute to long-run development. But, impact on economy should be viewed not only from the point of view of remittances-investment relationship. As pointed out remittances can affect positive economy in some of following ways (Glytsos, 2005):

- management of remittances (e.g. by banks);
- extension of investment credit allowed by the increase in the liquidity of banks from remittance deposits;
- investment in human capital in the form of spending on certain consumption items (e.g. education, health);
- purchase of more investment goods from abroad, made possible by remittances;

And to this we add some more:

- smoothing income inequality in short term;
- diversification;

•improving financial intermediation and improving other institutions;

•growth of investment as a result of the multiplier effects of spending on consumption.

Summarizing we can make the following chart:

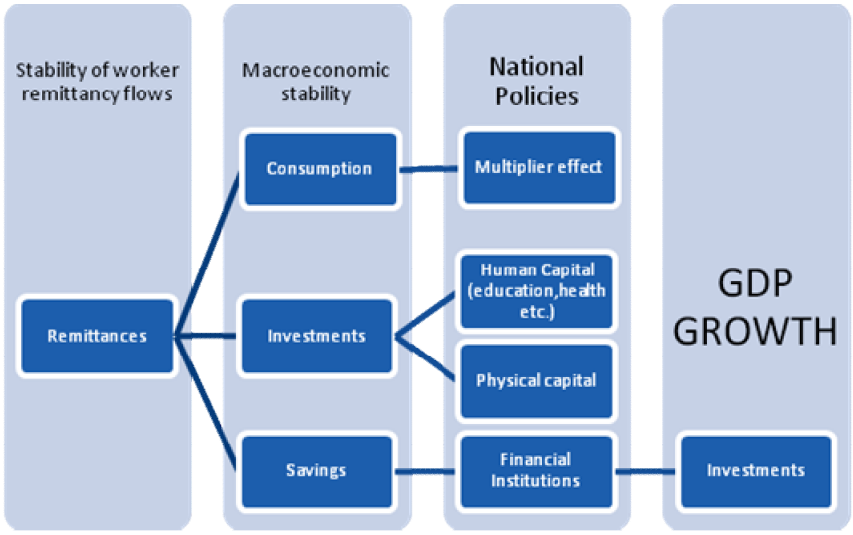

Figure 4. Influence of remittances on GDP

Source: author's elaboration (Stratan and Chistruga, 2010)

Summarizing, for Moldova, remittances influence economic activity through labor market by reducing labor supply and as consequence increasing wages. Remittances influence disposable income directly, influencing savings, investments (including in education and other social services) and consumption. This in turn influences tax collections and fosters internal demand. Moldova does not have the productive capacity to meet the increasing aggregate demand. The huge increase in imports is driven mainly by the boom of the aggregate consumption. An analysis of the situation reveals that workers' remittances are financing a large part of the trade deficit (Figure 5).

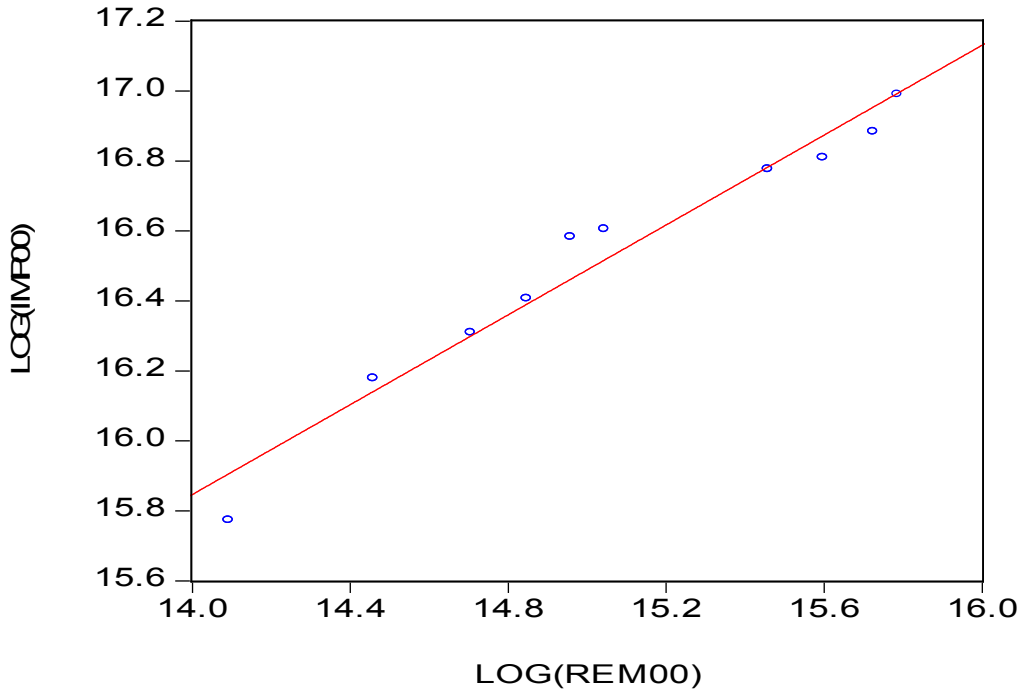

Figure 5. Correlation between imports and remittances in the Republic of Moldova

Source: author's calculations according to National Bureau of Statistics data

However, it is important to note, that the majority of the findings related to Moldova are based on CGE modelling, which has a serious drawback, it a static model and the dynamics are hard to

capture. Especially, if we are looking to see whether remittances influence or not economic growth and investments.

First let us see if there is any correlation between growth and remittances (aggregated from Balance of Payments according to IMF methodology). The results represented in the figure 6 are in line with our previous arguments and shows a clear correlation between remittances and GDP in Moldova. Pearson correlation coefficient is 0.76. Note, that remittances influence disposable income and afterwards consumption and through aggregate expenditures, GDP.

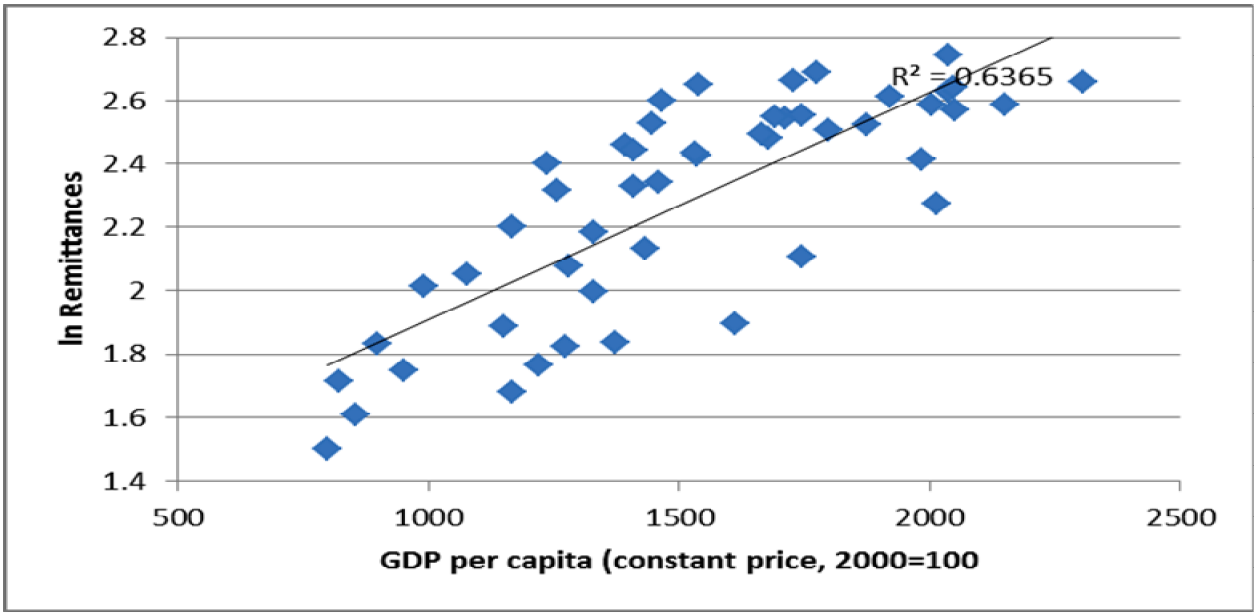

Figure 6. Correlation between remittances as share of GDP and GDP per capita, Q1 2000 - Q1 2012

Source: author's calculations based on NBM and NBS data

In case of Republic of Moldova we analyze the impact of remittances on labor market from 2 perspectives: influence on unemployment rate and on part-time employment. The members of households who receive remittances and decide to not become a full-time employee can select between part-time job or unemployed status, thus affecting labor market.

Figure 7 – Remittances and employment indicators

Source: elaborated by author using data from http://www.statistica.md/index.php?l=en

The growth rate of remittances has a very volatile evolution. During 2001-2008 periods it oscillates between 34.5% and -33.2%. There is no stable evolution of unemployment rate. It decreased till the crises of 2009 year, taking minimal value of 4% in 2008. After 2008 was an increase in employment rate, it varies between 6.4-7.4%. The share of part-time workers in employed

population has a more stable evolution, being characterized by downward trend, between 2001 and 2011 it decrease from 14.2% in 2001 to 7.3% in 2011.

In relationship between remittance and inflation it is important to know which way the direction of causality is running.

In order to analyze the presence of mutual causality between remittances and price level was used a VAR model. Two variables were included in the model: quarterly remittances and quarterly CPI, for the period of Q1 2000 - Q1 2012 (base period is Q1 2000). Time series which represent evolution of remittances and CPI was seasonally adjusted using TRAMO SEATS techniques. Further logarithmic data was differentiated, and as a result time series became stationary.

According to VAR model, 1% shock in inflation leads to a rise of remittances in second quarter by 1.4%, after that effect fade out. On the other hand the influence of remittances on inflation is marginal - the maximum effect of shock in remittances by one per cent has an impact on the prices in second quarter, only by 0.015%.

Table 1.

The response of inflation and remittances to shocks

	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Response of inflation to 1% shock of remittances growth, %	0	0.015	0	0	0	0	0
Response of remittances to 1% shock of inflation growth, %	0	1.44	-0.08	0.12	-0.01	0.01	0

Source: elaborated by author

The explanation of low statistical influence of remittances on price level can be explained by some reasons. There are small share of non-tradable goods in composition of CPI and their evolution capture only small influence from transmission mechanism through increasing consumption of non-tradable goods.

There are opinions that monetary factors in the Republic of Moldova have a small impact on inflation. IEFS (2011) estimated on the base of VAR model that 1% increase in monetary aggregate M0 has a maximum effect in 3 months generating an inflation of 0.06%. In the same context should be mentioned that remittances influence inflation from demand side, while in Republic of Moldova the price level is more sensitive to supply or structural factors. Important influences on prices have variables like: low productivity in the sectors of national economy, inefficient management of state enterprises or lack of competition.

Import prices, also have a great impact on inflation. There was elaborated a regression with inflation, expressed as differentiated logarithm of CPI, as independent variable and unit value of import and trend as explicative variables. Data about CPI, remittances and unit value of import was taken from National Bureau of Statistics. All variables were expressed in prices of 2000 years. Regression shows that changes in the value of imported goods by 1% contribute to a 0.47% increase of price level.

The evolution of some non-tradable sectors shows that Moldavian economy had symptoms of Dutch disease. We assume that a part of increased consumption, caused by larger inflow of remittances was directed to non-tradable and as result in 2006-2008 (period with higher share of remittances in GDP) some non-tradable sectors had higher growth than tradable.

Table 2

Growth rate of Moldavian economic sectors, %

SECTORS		Average growth rate 2003-2005	Average growth rate 2006-2008	Average growth rate 2009-2011
TRADABLE	**Agriculture**	3,6	1,1	1
	Industry	9	-0,8	-1,3
NON-TRADABLE	**Constructions**	15,4	13,3	-3,1
	Real estate	8,3	13,7	3,6

Source: elaborated by author using data from
http://www.statistica.md/category.php?l=ro&idc=191&

Other effect of larger inflow of remittances is the appreciation of exchange rate, which deteriorates the current account (imports became cheaper and more attractive) and affects negatively the competitiveness of exports (by making national products more expensive in relative prices). But in Republic of Moldova huge share of negative net export in GDP determines depreciation of national currency and compensate appreciation pressure from remittances inflow. In 2003-2010 NEER had an insignificant appreciation by 0,3%, and REER had a small strengthening by 3%.

Conclusions

In case of Moldova the analysis of relationship between growth, investments and remittances, proved that the growth model based on remittances does not yield in the long-run. Moreover, it argues that the relation between remittances and growth is ambiguous in Moldova. Economic growth proved to be not sustainable in medium to long term, it is necessary to identify and develop other engines of economic growth. Although, the influence of remittances in Moldova to other sectors, especially in reducing the poverty may have a positive result, the influence on economic growth, in a straightforward relationship, is proved to be unclear. A more positive result is in regards to investments, but lack of a well performing financial sector, does not allow for Moldovan economy to benefit from remittances.

In this context, in order to benefit from remittances and encourage a sustainable GDP growths there are some pylons/conditions to be met. First, it is important to assure the stability, at least for medium-term period, of these flows, because of their importance to the disposable income and poverty. Secondly, macroeconomic stability is another goal of the policy makers. In addition, finally, sound national policies that encourage the development of quality factors of economic growth (factors that are shifting the potential GDP). Speaking in the terms of economic growth theory, remittances may appear to be similar to FDI (other private international capital flows) and/or influence capital accumulation, labor force growth, TFP. In any case, in order to ensure sustainable growth, Republic of Moldova is obliged to perform reforms that improve business climate.

Other direction of action for policy makers is creating the appropriate conditions for remittances' transfers, including lowering the costs of international transactions via banking system. It could produce multidirectional effects: increasing the money transfers through formal channels and thus improving statistics data on remittances; increasing the disposable income of households that receive money from abroad.

Summarising, main constraints in using remittances in a more productive way are associated with little transfer sums, limited access to the financial market, market failures, too little knowledge about migrant's needs and investment climate.

For Moldova we recommend: stimulating collective investment programs, launching Hometown Associations, fortifying the influence of Moldavian Diaspora, the implementation of specialized international financial products, diversification of financial products offered to migrants and their families, launching programs that stimulate SME's development.

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THE ECONOMY OF INDEBTEDNESS

Lucian C. IONESCU[5]

Abstract

The hypertrophy of speculative monetary and financial flows has gravely impeded the normal evolution of the real economy, exacerbating the problem of indebtedness world-wide.

Some of the most important ideas of Keynes and Minsky have been selected and re-interpreted in the light of the mentioned rupture. The two types of Minsky's instability hypothesis – ascendant and descendent – have been correlated with the evolution of long cycles. Total debt (public and private) has been analyzed (proportions and structure) in connection with new forms of 'primitive' accumulation and rent which have introduced a *neo-feudal* component in the functioning of today's capitalist system, aggravated by the mankind's damaging ecological footprint.

The debt problem has a serious impact on the economic convergence in the European Union (nominal and real indicators). Suggestions regarding central banking and government/public sector investment policy have been included in the final part of the paper.

Key words: total debt; indebtedness; nominal economy; international crisis; financial instability hypothesis; new 'primitive' accumulation.

JEL classification: A1, B1, B2, E3.

The crisis that burst in 2007/08 had a devastating impact on international monetary & financial system. However it has also had a stimulating effect on a better understanding of the roots of instability and vulnerability of the present world economy.

The breakdown of the totalitarian socialist system (of the Soviet type) at the end of the 1980s contributed to a tendency to idealize the economy based on capital reproduction, by eluding any serious critical analysis of its functioning.

Nevertheless the amplitude of the crisis and its aftermath has overwhelmingly confirmed the Minskyan *financial instability hypothesis,* which until recently was mostly ignored.

In Minsky's vision, *instability* is an inherent and unavoidable drawback of capitalism: "The financial instability hypothesis is a model of a capitalist economy which does not rely upon exogenous shocks to generate business cycles of varying severity."(H.P.Minsky, May 1992, p.8). He emphatically identified the roots of his conception in Keynes's G*eneral Theory,* especially in the Keynesian meaning of the 'veil of money'. Consequently, Minsky's valuable contributions to economics & political economy have signalized a 'return' to the original Keynesian message.

From Keynes to Minsky

It is known that the so-called *neoclassical synthesis* had contradictory effects on the interpretation of Keynesian heritage: on the one hand, it has made easier the assimilation of neo-Keynesist ideas & principles by the 'establishment' but, on the other hand, it has at least partially emasculated the genuine Keynesian analysis of the capitalist economy and society.

Explaining the nature of the 1930s depression, it has been relevant that John M. Keynes deeply dealt with the delimitation of *speculation* (speculative financial operations) from *enterprise* (productive investment). For the former, it is characteristic the obsessive target of acquiring profits by speculating on different forms of liquidity (mainly in the short run), while the latter involves a long term vision and strategy. Although it may seem paradoxical, "as the organization of investment markets improves, the risk of the predominance of speculation does, however, increase." (J.M.Keynes, 1997, p.158). Keynes warned of the danger that capital development, as a factor of production, could become "a by-product of the activities of a casino", affecting the functions of stock exchanges themselves. Therefore, "the measure of success attained by Wall Street, regarded as an institution of which the proper social purpose is to direct new investment

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into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of *laissez-faire* capitalism…" (op.cit., p.159).

The Keynesian assertion was completely acknowledged by the dramatic consequences of the aggressive de-regulation campaign advocated by the neoliberalism during 1980s & 1990s. Exacerbating the 'autonomy' of the *nominal* economy (that is monetary, banking and financial flows and assets, up to 'derivatives') versus the evolution of the *real* economy (factors of production, goods & services) has represented the basic cause of the crisis phenomena in the last decade, including the present stagnant and recessionary profile of the economic evolution[6].

Due to the global expansion of the giant trans- & multinational corporations, detaining oligopolistic and even monopolistic positions, favoured by *credit and electronic money* proliferation, monetary, financial and foreign exchange speculation have ever more become an aim *per se*, moving gradually away from the trends and necessities of the real economy.

The rupture between the nominal and real dimensions of the economic activity is ambivalent, distorting both the national & international monetary systems and the factors of production markets. Despite the 'generalization' trend of capitalist economic and social model, the nominal /real rift has inoculated a *neo-feudal* element in the societal structure: various forms of the rent and rent-seeking. According to the Keynesian vision, in the economy based on capital, 'normally' there should have taken place "the euthanasia of the rentier, of the functionless investor" (Keynes, 1997, p.376). The replacement would have been evolving 'gradually', so that a revolution would have been 'useless': however that 'normal' replacement took place only partially and new types of 'functionless investors' appeared.

This failure has not been a historical 'accident'. It is intimately linked to an economic and social process specific to the mode of production founded on capital and which, in the 19-th century terminology (especially the Marxist orientation), was called the *primitive accumulation.* In James Glassman's phrasing, "though primitive accumulation is a process that some have considered a historical phase through which societies pass on the way to … social structures based on expanded reproduction, the current state of global affairs makes it evident that it is in fact central to capitalist accumulation in general or else has a much longer period of historical 'dissolution' than previously imagined."("Progress in Human Geography", 30, 5/2006, pp. 621/622). Nowadays, the main financial & monetary markets are overwhelmingly influenced by powerful speculators, the so-called *initiates* – to use J.Attali's terminology.

Total debt management during long cycles

The postwar economic reconstruction tended to re-establish the necessary correlation between the real and nominal flows of the economic circuit. The disintegration of colonial empires and acceleration of international economic growth contributed to a diminishing role of various types of rent and speculative financial flows, while productive capital assets grew in importance. This tendency would last about two and a half decades (until mid-1970s), corresponding to the ascendant phase of the postwar long cycle. Although Minsky's theory was applied especially to the mid-term or 'decennial' business cycles, his ideas are obviously seminal for explaining and understanding the causality of long term cycles (e.g. the Kondratiev type).The economic cyclical movement was one of my main research topics during some decades, so I have proposed the following periodization regarding the long cycles of the 20-th & 21-st centuries, made up of a descending/stagnant stage and an ascendant/expansionary stage: descending stage – 1929/30 until 1944/45; expansionary stage – 1946/47 until 1971/72; stagnant stage – 1973/74 until 1990/91; ascendant stage – 1992/93 until 2006/07; descending stage – 2007/08 until about 2020.[7]

In his fundamental work – "Stabilizing an unstable economy", Minsky depicted the double meaning of the *instability* as a key concept for his theoretical system: a descending instability (crisis/recession/deflation) followed by an ascendant (exuberant/inflationary) instability which, at its turn, provokes another speculative boom that would finally bust. Even if this approach brings a meaningful insight for understanding mid-term business cycles, it has a more profound and complex

[6] I remarked this danger in the early 1990s and I developed this thesis in different studies and articles (e.g. the study published in "*Financial Studies"*, no.3/2013).

[7] L.C.Ionescu, "Interdependence between monetary and real economy in the context of the international financial crisis", in UFB REVIEW, no.1/2011

contribution to revealing the nature of long-term cycles: “The theoretical argument of the instability hypothesis starts from the characterization of the economy as a capitalist economy with expensive capital assets and a complex sophisticated financial system.”(H.P.Minsky, May 1992, p.2).

After the ascendant part of the first postwar long cycle, the ‘oil shocks’ of 1973/74 and 1978/79, including the adjacent recessions, marked the prerequisite for a broader and deeper rift between the real and nominal sides of the socio-economic activity: there is not a mere coincidence that the ‘de-regulation & liberalization’ crusade took place during the 1980s and 1990s. Despite the neoliberal propagandistic terminology, this process acted as an incentive for the expansion of a ‘neo-feudal element’, essentially due to the fact that ‘free competition’ has ever more been replaced by oligopolistic and monopolistic structures. Moreover, since the mid- 1980s the earth’s peoples have been using more of the planet’s resource production each year than could be regenerated in that year: “the ecological footprint of global society has overshot the earth’s capacity to provide.”(Donella Meadows, Jorgen Randers, Dennis Meadows, 2004, p.3). The ‘global’ human society would need about 1.5 planets (of the Terra type) to meet its consuming necessities & habits, leaving aside the huge discrepancies among countries and social categories. In fact, at present, the neo-primitive/barbarian accumulation gravely affects ‘mother nature’ and implicitly the life environment on our planet.

This intricate phenomenon has been affecting the evolution of the real economy and, at the same time, has provoked the recrudescence and multiplication of different kinds of socio-economic and political rent & rent-seeking, among which a conspicuous component, in our interpretation, consists in the insidious increase of debts almost all over the world. Historically, total debt tended to grow during the descending or stagnant stages of the long cycles and to decrease (at least relatively) along the ascendant stages. Yet, in the last two decades, a *structural deterioration* has become obvious: the proportion of the total debt has been continuously amplifying – only its growth rate has varied (in time or from country to country).

In this context, the real/nominal dichotomy has been perverting the normal economic circuit by diminishing the role of productive investment strategy in favour of the *debt management*. As Minsky formulated, “the financial instability hypothesis, therefore, is a theory of the impact of debt on system behavior and also incorporates the manner in which the debt is validated”, but “whether or not liabilities are validated depends on investment” (Minsky, May 1992, p.6). Therefore the financial crises have ever more preceded profound economic imbalances – the most eloquent manifestation of nominal/real rift in the economy.

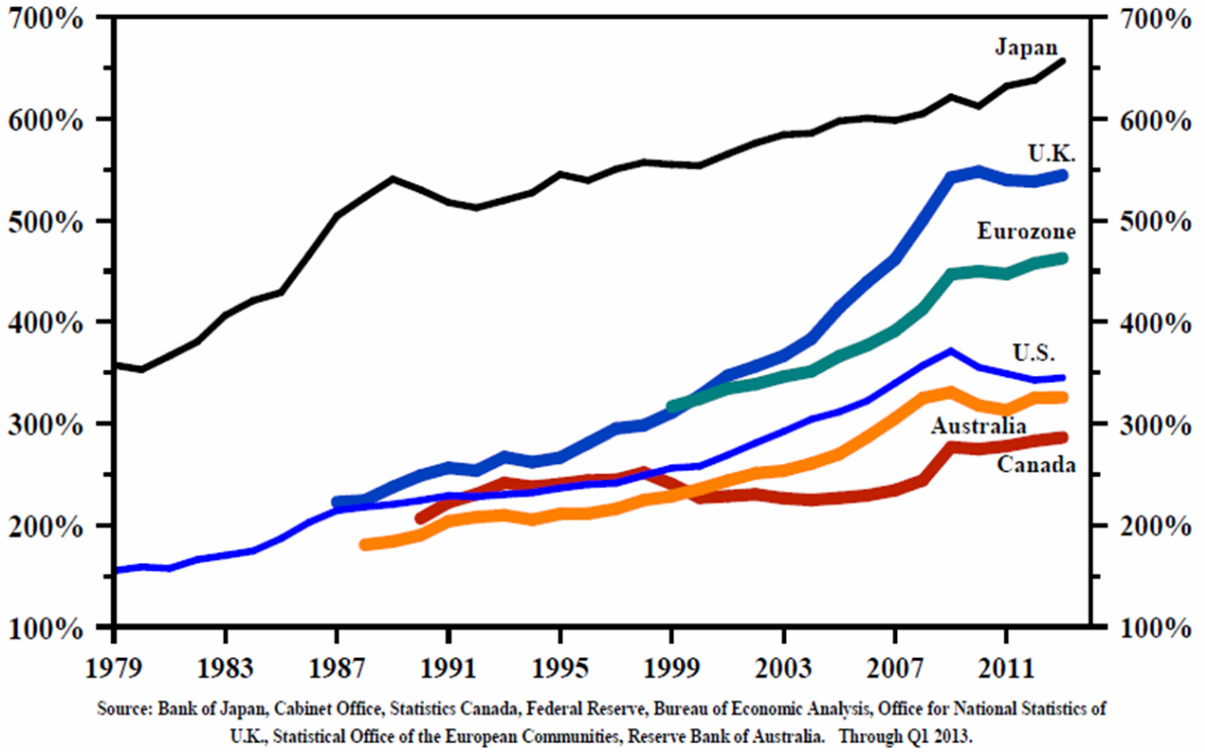

Figure 1. Total Private and Public Debt as a % of GDP. Major Countries (annual)

Consequently a troublesome characteristic of the contemporary world economy has been the *tremendous increase of different categories of debt in most countries*. A significant example is represented by the *total debt*[8] of the ten largest developed mature economies which has been standing at almost 350 % of their GDP in the last years (*Global Finance,* the 2012-14 collection). Here are some examples (TIME, the 2012 collection), in a decreasing order (between brackets the government or public debt share, from IMF, WEO database April 2012): Japan – 512% (235.8), UK – 507% (88.4), Spain – 363% (79), France – 346% (89), Italy – 314% (123.4), USA – 279% (106.6), Germany – 278% (79), Canada – 276% (84.7). Moreover, the tendency of an increasing total debt has been preserved in the years to follow (2013/14). The US economy is presenting a striking case where public (government & intergovernmental) debt has exceeded the GDP, for the first time since the end of World War II (when it stood at 113%). In the postwar period, it slowly diminished until the last 1970s, then increased rapidly again, flattened somehow during the 1990s (while the 'New economy' was hailed) and clearly worsened in the 2000s, especially after the crisis burst out.

Under these circumstances, IMF, World Bank and European Commission (EC) focused on the stringent necessity of decreasing public/government debt, starting with tough limits for government budget deficit (a maximum 3% of GDP for EU countries), irrespective of the level of development of the countries analyzed. Unfortunately private debt did not receive the same attention. In a capitalist economy, government debt is, in most cases, a 'mirror' of the nature, structure and proportions of the private debt. If we are referring to US – still the most important western economy, it is evident that the government debt had a pronounced countercyclical evolution, but with an ascendant long-term trend since early 1980s. This tendency reveals that public debt is approaching its upper torelable limits in correlation with an unhealthy augmentation of private debt (particularly that of financial institutions).

This dangerous propensity is recently confirmed by the continuous increase of total debt. Thus, after about two years (since 2012), total debt has exceeded 600% of Japan's GDP: even if the so-called "austerity measures may have managed to create (more) budgetary discipline, but without a resolution of private debt there is little hope of avoiding the Japanese scenario of low growth, deflation flirts and stubbornly high unemployment."[9]

Beside excessive bureaucratic or corrupted expenditures ('crony capitalism'), the magnitude of government debt reflects specific traits of an economy based on private dominant capital: bailouts - especially for financial institutions considered 'too big to fail' - and the tendency of huge corporations to ignore or at least to minimize *their social and ecological responsibilities*.

Debt and dilemma of economic convergence in EU

This complex situation draws again the attention on the nominal/real disruption in the economy. Such a dysfunction can be also traced in the original form of the *Treaty on the European Union* (the Maastricht Treaty, enacted in 1993), where only the *nominal criteria* were expressly mentioned for adopting the single currency (Euro) by the EU member states, while the *real convergence* was considered simply as background. The dramatic events of the last decade (mainly the international financial crisis and its effects on economy) have revealed the decisive importance of a close correlation between the nominal & real criteria for achieving economic convergence, vital for building up an efficient *economic and monetary union* (EMU). According to the Maastricht Treaty, only the government/public debt was limited to 60% of a member country's GDP (including some significant 'exceptions').

Paradoxically, after more than a decade since the Euro has become the 'single currency' for EU member states (presently 18 countries out of the 28 members), the Euro-area's average government debt has exceeded the average for the whole European Union – over 90% vs. 85.9% (data for 2013), marking a worsening trend (over 87% and, respectively, 83.3 in 2012). Moreover, *private debt in EU represents more than twice the size of sovereign debt.*

[8] Total debt is including public debt (mainly government debt) and private debt (financial institutions, non-financial businesses, households).
[9] M.Canoy, R.Fransman in "*Pieria*", March 26, 2014

Figure 2. Euro Area Government Debt to GDP

As long as the two basic dimensions of the EU economic convergence – nominal and real – would evolve de-synchronized or even in contrast, *euro* would risk being a vehicle for speculative monetary-financial flows and only collaterally would stimulate sustainable growth and economic restructuring. The EU single currency could be beneficial for all member states just conditioned by a well-balanced correlation between the nominal and real aspects of the economy.

After the effective failure of the initial versions of the Stability and Growth Pact (including the 'revised' form in 2005), there has been set up the *Macroeconomic Imbalance Procedure* (MIP) for supervising, in a more coherent manner, both nominal and *real* indicators, involving *Alert Mechanism Reports.*[10] This time 11 indicators have been selected, among which private sector debt share (consolidated) in GDP and changes in total financial sector liabilities. The threshold for private debt (non-financial businesses and households) has been set at 133% of GDP (a first tentative limit of 160% had also been considered). As regards the financial sector liabilities, only year-on-year changes are analyzed. However, after about two years of MIP, "there has been little progress so far in reducing excessive private debt, although credit flows have been very low or even negative in many countries…"[11] In fact, euro-area total private debt has been estimated at over 400% (in 2013).

MIP seems to be a step in the right direction, but one should not neglect that macroeconomic stability cannot be a goal in itself: previous experiences (such as the dramatic 1930s) showed that 'macroeconomic equilibrium' may coexist with a strikingly low level of real economic activity which means large quantities of *unemployed* factors of production. Therefore a new social danger is looming: the so-called *jobless growth* (modest GDP growth rates, accompanied by ever higher unemployment levels).[12]

This specific case updates the essential difference between the *productive* investment and the *speculative* investments (such as the famous financial *derivatives).*If the previous ascending phase of the last long cycle seemed to focus on the expected benefits of the globalization, the present descending/stagnant phase mainly reveals the perils of this contradictory process. Consequently the amplifying trend of the total debt has become a world-wide phenomenon. The global indebtedness – comprising both the public and private components – is representing more than 300% of the world GDP (313% at the beginning of 2013): debt in developed states has amounted

[10] Regulation (EU) of the European Parliament and of the Council, entered into force in December 2011.
[11] European Commission, Alert Mechanism Report, Brussels, 13.11.2013, p.1.
[12] According to Real Time Economics (from The Wall Street Journal), 2013 collection.

to almost 160 trillion US dollars (nearly 380% of GDP) and emerging market economies' debt has been over 66 trillion US dollars (more than 220% of GDP).

Endeavouring to alleviate this troublesome situation, *open market operations* (OMO) may be adequate for monetary policy in relation with the government debt and the biggest banks, while the 'discount window' should be revitalized for middle & small banks, more directly linked to the investment process of the SMEs. Both the ever higher total debt (public & private) and immense funds 'injected' by central banks in economy to ease the financial crisis' consequences seem to indicate that the type of macroeconomic interventions, that was relatively successful till the end of the 20-th century, has been approaching its upper limits in the last decade. As H.Minsky concluded at the end of his main work, the fundamental destabilizing nature of capitalist finance would make necessary a *periodic and profound restructuring and reforming of the institutional framework of the economy.*

In the aftermath of the international financial & economic crisis, the Minskyan vision and critical analysis of capitalism is still seminal for restructuring society[13]: monopolies and oligopolies ever more representing a special form of 'tax collectors' (as new kinds of rent that have been mentioned before), public control or even public property of large capital intensive production units remains essential for solving vital social problems. The role of the public sector should not be confined to fiscal policies (taxes & expenditures), but it should also involve investment resources in economic activities generating value-added activities, which could finally be self-financing. As the 'socialization' of the costs of the crises is already a '*fait accompli'*, while the profits remain private, it would be quite fair to 'socialize' at least part of the benefits obtained in both the public and private sectors (social solidarity).

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[13] See chapters 12 &13 of "Stabilizing an unstable economy" (New Haven: Yale University Press, 1986 or McGraw Hill Professional, 2008).

CALCULUS AND FREE WILL IN THE ECONOMIC DECISION

Emil DINGA[14]

Abstract

Starting from the Derrida's belief (i.e., the freedom begins where/when the calculus ends), the paper discusses the frontier between the necessity and the liberty in taking the economic decision. In the context, the necessity is thought as being the logical consequence (effect) of the calculus, while the contingency is thought as being the logical consequence (effect) of the liberty. Moreover, the paper discusses also the free will as opposition to the necessity generated by the calculus. Finally, all the three paired concepts (necessity/calculus, contingency/liberty, free will/free won't) are systematized into a quasi-rational mechanism of economic decision in order to explain the actual economic behavior.

Keywords: free will, calculus, necessity, contingency, rationality model

JEL classification: A10, B4

Some conceptual clarifications

Rationality: a logical inference from premises to conclusion, based on the four principles of bivalent logic[15]. There are four categories of rationality:

a. the *autonomous rationality* (AR): involves derivation of non-empirical conclusions from non-empirical premises;

b. the *habit rationality*[16] (HR) involves derivation of empirical conclusions from empirical premises;

c. the *rationality based on faith* (FR) involves derivation of non-empirical conclusions from empirical premises;

d. the *practical rationality* (PR) involves derivation of empirical conclusions from non-empirical assumptions.

Table 1

A logical inference from premises to conclusion

	Empirical premises	Non-empirical premises
Empirical conclusions	**HR**	**PR**
Non-empirical conclusions	**FR**	**AR**

Model of rationality: a logical device that generates necessarily and invariably[17] conclusions from premises based on their own semiotic principles.[18]

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[15] The principle of identity (A = A is valid), the principle of non-contradiction ($A \wedge \bar{A}$ is invalid), the principle of the third excluded ($A \vee \bar{A}$ exhausts the possible), and the principle of sufficient reason. **Aristotle** introduced the first three logical principles, and, the **Leibniz** introduced the fourth.

[16] Based on habits.

[17] What can be said in this context about **Gödel** effect (effect generated by the **Gödel** theorem)? Our view is that a response of indetermination type (which is the answer of the theorem of **Gödel** to the question about the completeness of an axiomatized epistemological system) is still an answer based on the model of rationality.

[18] There are three semiotic principles: a) the principle of semantic: relationship between the sign and its referential (denoted); b) the principle of syntactic: relationship between signs (whether in sentences or in predicates); c) the principle of pragmatic: relationship between the sign and the sign user.

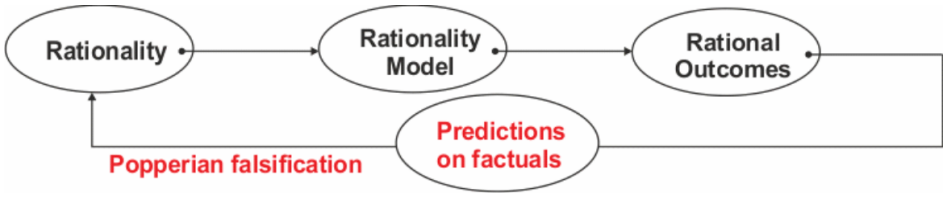

Figure 1. Model of rationality

Calculation: any finite episode in the operation of a model of rationality.[19]

Result (conclusion): any intelligible result of a calculation.

Decision: any conscious acceptance of a result, regardless of its significance or meaning.[20]

Necessary: a state parameter of an entity (for example, a system) that is inherent of that entity (system).

Rational decision: any decision which necessarily results from a model of rationality, using the accepted rules of logic inference.

Necessary decision: equivalent to rational decision.

Behavior: any praxiological objectification of a decision, regardless of the way used for this objectification.

Rational: a state parameter entity (for example, a system) that is necessarily required by that entity (system) within a model of rationality.

Irrational: a state parameter entity (for example, a system) that is inconsistent with that entity (system) within a given model of rationality[21]. For example, it will appear for a Keynesian economist as being irrational the policy decision aimed to stimulate the supply[22], while for a monetarist economist, it will appear as irrational the decision of economic policy aimed to stimulate demand.

A-rational: a state parameter entity (for example, a system) that cannot be associated with the functioning of any model of rationality accessible[23].

Free will: a state parameter entity (for example, a system) that allows that entity (system) can to oppose (through ignorance, modification, rejection, etc.) to the necessity.

Necessity: space of behavioral occurrence where the free will is impossible.

Freedom: space of behavioral occurrence where the free will is general.

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[19] For example, the operation of a universal **Turing** machine.

[20] The significance leads to the denotation, while the meaning leads to the connoted. Somehow, the meaning is subjective version, customized, individualized significance. Therefore, while the signification can have a public character, the meaning is always of a private one. Typically, the signification is inter-subjectively communicable while the meaning is not (for example, a religious or an aesthetic experience is not communicable inter-subjectively, at least in a discursive way; however, in non-discursive ways - such as the artistic one – the meaning could be shared inter-subjectively).

[21] So the irrational does not have a pejorative sense, it does not mean anything undesirable, sub-optimal, in-acceptable etc., it means, simply, that it cannot be logically derived from a given model of rationality. Therefore, the irrational is, actually, very present in the social behavior decision (and therefore in the economic decision), but this does not mean something wrong, something to be avoided etc.

[22] An example is the recent decision by the government of Romania to reduce the social contribution rate by 5 percentage points (pp). It is obvious that the measure is likely to stimulate the demand (for example, by reducing labor costs, which would boost employment, which would increase the supply). A Keynesian would immediately ask the question: why would an employer to hire more labor, i.e. to increase the supply if there is not an increase in the demand (even before the supply growth)?

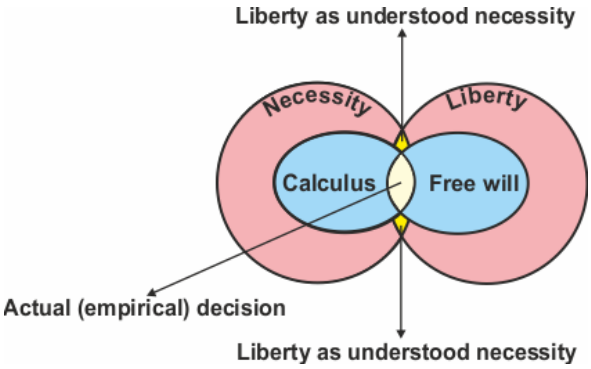
[23] This includes, in particular, affects-based behaviors. There are, however, many authors which consider the irrational is also associated with the affects. This position is, in our opinion, at least negligent, but more correctly it must be evaluated as wrong. So a decision (or behavior) that appears as irrational them against a model of rationality may seem perfectly rational in relation to another model of rationality, while the a-rational cannot be assigned to any available model of rationality (of course, from a diachronic perspective, may appear in future models of rationality that to "reclaim" the rational or irrational decisions that today appear as a-rational).

Contingent decision: decision taken within the area of freedom.

Effective decision: decision taken in the space given by the intersection of necessity and freedom[24].

Four theses on the relationship *calculus - free will*

In this section we make some considerations on the relationship between calculus and free will. In fact, the pair *calculus - free will* is not a primitive conceptual pair (source conceptual pair), but a derivative (secondary) one. Thus, it is a true reflection of the genuine primitive conceptual pair: pair *necessity - freedom*.



•***Thesis 1***: *No calculus-based decision is of the free will nature*

The argument in supporting this thesis is as follows: once elected a model of rationality, the result (conclusion) is of necessary type, i.e. of the type of logical necessity. Since the necessary is inconsistent with the free will, it results that the result (the conclusion) generated by a model of rationality is outside the "territory" of free will[25].

Question: What can be said about the situation in which rationality model provides more than one result (conclusion), and a choice must be made among them?

Answer/Comment: In this case we need another model of rationality aimed to choose among the decision alternatives previously provided by the initial model of rationality. This new model of rationality will provide, however, in a necessary way too, an answer on that particular new decision to be adopted. So it remains still in the "territory" of necessity.

The consequence of the answer: the possible free will must be sought with a step back, namely at the level of rational choice model (either the original or the choice between several alternatives for decision provided the original model of rationality).

•***Thesis 2***: *No choice of a model of rationality is of the free will nature*

The argument in supporting this thesis is as follows: choosing between models of rationality is equivalent to choosing between alternative decisions provided by a given model of rationality: simply we can call the rationality models among which we must make a choice as being…alternative decisions. These alternative decisions are just the individuals from the list of the models of rationality provided by the meta-model of rationality[26].

Question: What can be said about the criteria for choosing between models of rationality provided by a meta-model of rationality?

Answer/Comment: This time we have to develop a deeper analysis: we will say that these criteria should be derived from a key-principle. The key-principle is understood as a founding principle[27] of

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[24] The real, actual decision, we are facing in historic (concrete) space-time history is always of an effective decision type. Obviously, the actual decision is an empirical one.

[25] More generally, it is outside the area of freedom.

[26] Obviously, a meta-model of rationality is still a model of rationality. The concept of meta-model of rationality - defined as a model of rationality that provides as results (conclusions) a list of models of rationality - is a very interesting concept of epistemology but it will not be developed here, of course.

[27] It is understood that the concept of *principle* is not a positivist concept (it is not verifiable factual, and is not derived from a repeatable experience such would require, for example, **Hume**) but a metaphysical one. However, in our view, human behavior in general cannot be scientifically built without a metaphysical base,

any rationality[28]. It should be noted that the key-principle (principle of foundation) is an absolute invariant (or, in any event, with a very large invariance, for example, the duration of existence of a Universe with its own physical constants)[29].

The consequence of the answer: again, the free must be sought with a step back, namely among the founding principles.

- ***Thesis 3***: *the only invariant criterion (key-principle or foundation principle) able to substantiate a generic model of rationality is the human nature*

The argument in supporting this thesis is as follows: the human nature is generated, in a fundamental way, by non-cultural factors[30]. This makes the human nature invariance is ensured just by its necessary character[31].

Question: could the socio-biology provide a background explanation (i.e., of the key-principle nature, or of a principle of foundation nature) of the human behavior?

Answer/Comment: We consider that the answer must be yes, on one condition: the uniformity of explanatory action[32]. The problem is that the human nature, just by its characteristic to remain in the background (because it is the only way to be invariant and uniform) is a *das Ding an sich*[33]. So, what is the phenomenon, i.e., the knowable objectifying, associated to the human nature? We believe that this knowable objectification is the *human condition*.

The consequence of the answer: the human nature, when objectified through the human condition, no longer holds the property of invariance. In fact, the human condition is human nature altered by the culture. But the culture is a contingent phenomenon, so non-necessary and non-uniform.

- ***Thesis 4***: *the sole criterion (non-invariant) able to substantiate an actual model of rationality is the human condition*

The argument in supporting this thesis is as follows: the human condition is the phenomenon, while the human nature is the noumenon (*das Ding an sich*); thus, in terms of historical, what grounds a model of rationality is always the human condition; as, by definition, the human condition is contingent, it will be non-invariant, although it is the only operational criteria for ground an effective model of rationality[34].

Question: the contingent nature of the human condition does not compromise its role to substantiate any effective model of rationality?

Answer/Comment: in fact, choosing the key-principle (the founder principle) is the only free choice (under the empire of the free will); for example, the choice of axioms in an explanatory or praxiological system is arbitrary[35], that is, it is under the free will.

The consequence of the answer: the only time (in the logical sense of the term) when acts the free will is when the key-principle (founder principle) of the model of rationality is chosen. Everything that follows as logical moments: building the model of rationality, choice of the alternative decision from the list provided by the model of rationality (including choosing the model of rationality

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however this may sound paradoxical for someone who equates the scientificity with the classical positivism (i.e. that of the Vienna School, especially the **Carnap**'s).

[28] For example, the key-principle (the foundation principle) of scientific knowledge is the principle of causality. The principle of causality is not a positivist principle, although it grounds any imaginable positivism.

[29] For example, the founding principle of homo œconomicus model of rationality (we refer to the primary version directly derived from considerations of **Adam Smith**, without the subsequent adjustments) is the *principle of selfishness*.

[30] Here, the biological factor is determinative. In this context, we believe that economists would do well do not avoid a serious documentation in the socio-biology, despite a negative reputation, undeservedly “won" by this discipline.

[31] As it is known, the cultural is contingent (by contingent will understand the possible non-necessary).

[32] For example, without connotations of racial or other type of segregation.

[33] The thing in itself (in German).

[34] Similarly, the positive law must be interpreted as a phenomenal reflection of the natural law.

[35] The term *arbitrary* has not a negative connotation, it means, simply, discretionary and, above all, means non-criterially. Choosing the key-principle (principle of foundation) is not a rational choice, that is, it is not a necessary one.

himself, if the founding principle allows construction of several alternative models of rationality) are results obtained by calculus, so necessary results.

Some conclusions

- ✓ any calculus (no matter whether quantitative or qualitative, simple or sophisticated, rationality model-based or intuition-based) requires social decision (and therefore economic) necessarily; therefore, any calculus takes us inevitably, on the territory of necessity;
- ✓ if is it possible to take a decision (or to motivationally ground a behavior) without calculus, then this decision is of the free will nature, because it opposes the potential necessity; noted that opposition to the necessity refers to opposition to the necessity generated by a model of rationality[36] (and, hence, by the calculus involved) and not in opposition to the necessity in general[37];
- ✓ the free must be sought and found in the background of the rational choice model, namely in choosing the key-principles (founding principle) for the rationality model choice;
- ✓ although theoretically the key-principle (the founder principle) in choosing the model of rationality is the human nature, it cannot be operationalized since it is "blocked" by his phenomenological stance: the human condition (that is, the human nature altered by the culture); therefore, the free will is manifested only in the logical time of choosing the key-principle (principle of foundation) generated by the human condition, based on which the model of rationality is chosen.

[36] We believe that there is much work both in terms of probability modeling of social phenomena (and therefore economic) and on modeling through what is called game theory. We report an epistemological error encountered, in a more obvious degree, in the game theory: players' reaction functions are modeled (so we have a pre-existing model of rationality) through a reaction matrix (containing, as components, action strategies or reactions) which is common (and known) to both players (if we consider, for example, the duopoly). Even if the two players would have different reaction matrix (known or not by the another player, depending on the sophistication of the game) it will still be the same model of rationality for both players: this means that each player will have the same reasoning structure with each other, that is, each will consider the rational behavior of the other, from his point of view (see here, for example, the prisoner's dilemma, where the model of rationality is common). Of course, this assumption provides a very elegant mathematical modeling, but it is equally certain, it is very far from the actual behavior. However, if we consider that the two players make decisions based on different models of rationality (unknown to the other partner), the whole game theory loses all meaning.

[37] It is important to insist on this point: opposition to the necessity, in general, is impossible, but opposition to a sectorial (local) necessity (for example, a necessity imposed by a model of rationality) is possible. In addition, we would say, it is quite common, given what we call rational or irrational behavior in the social field (and therefore in the economy field). Authors like **George Akerlof**, **Daniel Kahneman**, **Dan Ariely**, **Jon Elster**, **Leonard Mlodinow**, to mention just a few of the most cited, dealing extensively (although, in our opinion, in a relatively unsystematic way, from the epistemological perspective) with the behaviors so-called irrational or a-rational.

FISCALITY, PUBLIC BUDGET, AND REAL ECONOMY

IMPACT OF SYSTEMIC BANKING CRISES ON MACROECONOMIC POLICY

Cociug VICTORIA[38]

Postolache (Dogotari) VICTORIA[39]

Abstract

Application of provisions of macroeconomic policy in order to ensure the stability of the banking system, especially, of the financial system as a whole is one of the strengths point of the concept of sustainable development. From one side, management of systemic risk requires orientation of supervisors bodies in monitoring of the situation and to follow the evolution of national banking systems, as a whole, combined with monitoring of monetary policy and microprudential supervision of banks. From another side, real system interacts strongly with the banking system, which generates consequences for banks and financial stability. Motivation for choosing this research topic arising from its novelty and, also, uncertainty of the concept of systemic crisis and involving macroeconomic policy provisions in the banking sector.

Key words: banking sector, economic crisis, banking systemic crisis.

JEL Classification: G15, E01, G01.

Introduction

Conceptual aspect of the notion of systemic banking crisis has been studied and analyzed by many economists, like Lestano J. J. [11], G.E. Hodachnik, E.M. [8] Korotkova, G. Soros [13], *Pranee T.* [12], *Glick R*[7], among them we can meet and *Kovzanadze P.*, that think that "systemic banking crisis - the rapid and large-scale deterioration of the quality of bank assets under the influence of unfavorable factors of macroeconomic, institutional and regulatory nature" [6].

Of course this definition may be completed on forever, because the levels where can be caused a banking crisis are different, involving not only commercial banks but also central banks, having a big influence on the whole economy.

Description of the problem

From information presented in the specialized literature is observed that the most telling is the liquidity crisis which has a considerable impact on the entire banking system, as does Sweden in 1991 when Central Bank invest significant funds in the banking system. Following this, the insolvent commercial banks were nationalized and highly profitable investments were restructured through the issuance of long-term debt obligations. As a result, despite the huge financial resources mobilized to overcome the crisis, it did not have a destabilizing effect on either inflation or the budget sector. Its impact has been limited on the microeconomic level. The banking crises can be divided into three groups presented in the figure 1.

The concept of "system" requires us to find answers for questions like: why systemic crises are dangerous? or that are their impact on the economy and macroeconomic policy?

The crisis concerns only one of the banking sectors of the national economy (ex. banking crises in Spain 1978-1984, in Argentina 1995-1996) or even a single category of credit institutions (for example, the crisis of storage banks in the United States at the finish of 80th years) [6]. Other sectors of the national economy at this moment show the necessary stability.

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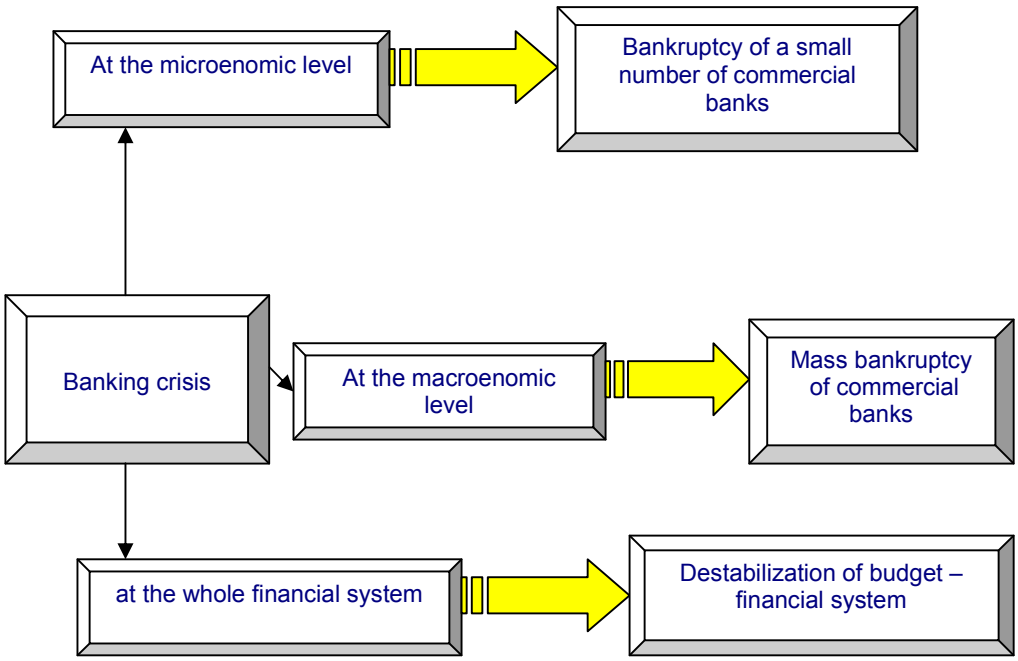
At the microenomic level
Bankruptcy of a small number of commercial banks
Banking crisis
At the macroenomic level
Mass bankruptcy of commercial banks
at the whole financial system
Destabilization of budget – financial system

Figure 1. Types of banking crises

In countries with transition economies, on the contrary, increased systemic crisis in the banking sector has led to an immediate aggravation of the political crisis, which causes a permanent financial crisis. The problems of overcoming banking crises in transition countries is that they coexist and simultaneously aggravated with crises taking place in nearly or in all sectors of the national economy, except, perhaps, the informal sector, including shadow and criminal business that best uses the crisis with maximum benefit for themselves. Crisis even more covered sphere of social relations. In other words, in transition countries, there is something more than a banking crisis, which should be considered as separate, but a very important part of the general crisis of the political-economic system. That's why, the western technology of banking restructuring sometimes get not only a strong inhibition, but negative results.

If in countries with market economies in the moment of banking crisis in the credit sphere along with critical structures continue to function healthy, sustainable, competitive lending institutions that consist the most significant part of the system, then in countries with economies in transition all credit institutions have difficulty, including the lender of last resort and the public finances. New commercial banks in transition countries are usually problematic organization which commits difficult transition from total state protectionism in the credit system to banking autonomy.

Obtaining autonomy, new banking structures, in the initial stage of this transition is too closely associated with the state budget, has a chronic deficit and is therefore they a universal source of infection. Banking structure of market countries is completely independent of the state budget, and their situation does not directly affect their financial stability.

We can agree with the experts of the International Monetary Fund that the forms of manifestations of the banking crisis in all countries, without exception, are universal. These are indicators of bank failure.

So, at the macroeconomic level the difficulties may be related to the following aspects:

- increase in crediting, which in some degree is caused by the increasing investment or changes in tax laws;

- rapid development of so-called "soap bubble" in real estate and/or securities spheres, which terminate their activity;

- slowing down the economic growth and/or reduction of export transactions, or loss of export markets;

- excess in productive capacity/ decrease in profitability in the real economy;

- the growth of the budget deficit and/or of the current balance of payments, reduction of public debt service capabilities;

- sudden changes in exchange rates and interest rates, etc.

The question of what factors caused the development of the modern global financial crisis, is still debatable. Most analysts tend to believe that is caused by a combination of number of micro and macroeconomic factors.

Methodology and data sources

Characteristic for macroeconomic conditions is a long period of excess liquidity, partly due of low interest rates, which has been established after the recession in 2001. Excess liquidity fueled internal demand and initiated the growth in property prices, which almost doubled in the period from 2000 to middle of 2006.

Macroeconomic factors resulting from financial regulation (or its disadvantages) and policies of credit institutions have also played an important role in inflating the “financial bubble”.

According to this approach, banks gave loans for sale to other financial institutions, which from them formed pools and issue securities insured by assets. These tools were the basis for the new structured products.

From 1970 to 2011 alone, Laeven and Valencia counted 147 systemic banking crises. They identified a systemic banking crisis when signs of market financial distress, such as losses, liquidations and/or bank runs occur and when policy intervention measures to deal with significant losses are introduced. The authors identified a systemic banking crisis if two conditions:

- significant signs of financial distress in the banking system;

- significant banking policy intervention measures in response to significant losses in the banking system, are met.

Based on these criteria, 147 crises were identified. For these various crises, the authors gave information on policy responses (deposit freeze, guarantees on bank liabilities, liquidity support, nationalizations, recapitalization, expansionary monetary policy, expansionary fiscal policy) and on the outcomes of banking crises (fiscal costs, output losses, increase in public debt and peak in non-performing loans).

Laeven and Valencia noted that monetary and fiscal policies are used more extensively during banking crises in advanced economies than in emerging and developing countries, possibly because advanced economies have better financing options to use countercyclical fiscal policy and generally more space to use monetary policy.

However, the same authors also noted that such countercyclical policies, while used to avoid a sharp contraction in economic activity, risk slowing down actual bank restructuring that would allow banks to recover more quickly and renew lending to the real economy [9].

There is therefore a risk of prolonging crises by depressing growth for a longer period of time. In addition, increase in public debt may in turn lead to slower growth and further depress the economy. Finally, Laeven and Valencia found that more targeted interventions, such as bank recapitalisations, were associated with more positive outcomes than less targeted actions [10, p. 147 – 177].

World experience shows that choosing the best way out of the financial crisis may be different. Among experts there is no consensus on the question of what should be the structure of anti-crisis actions. Some emphasize the need to reduce budget expenditures to overcome the crisis, others - minimizing the loss of national income and to accelerate economic recovery, and others - to achieve long-term structural reforms. As rule, governments have a certain choice of measures to overcome financial crises. Determining factor in the development of appropriate policies is to understand the role of redistribution of taxpayers in favor of banks and creditors, accepting the major consequences of the crisis.

Such redistribution is capable of restoring productive investment, but it is associated with high costs for financial support and indirect costs, associated with inefficient allocation of capital and the reduction of economic incentives, that may appear after the crisis.

In order to prevent the development of the banking crisis and its becoming into a systemic crisis are important rapid adoption and implementation of government actions. For this it is necessary to determine the magnitude of potential bank losses and develop ways of adequate banks recapitalization.

Recapitalization program must be selective, to establish clear rules for banks' access to refinancing. These long-term studies shows that for recovering the financial health of the indebted firms are most effective restructuring program clearly defined, even if their implementation also requires public funding. Graphically stages of appearance and development of the banking crisis are shown in figure 2.

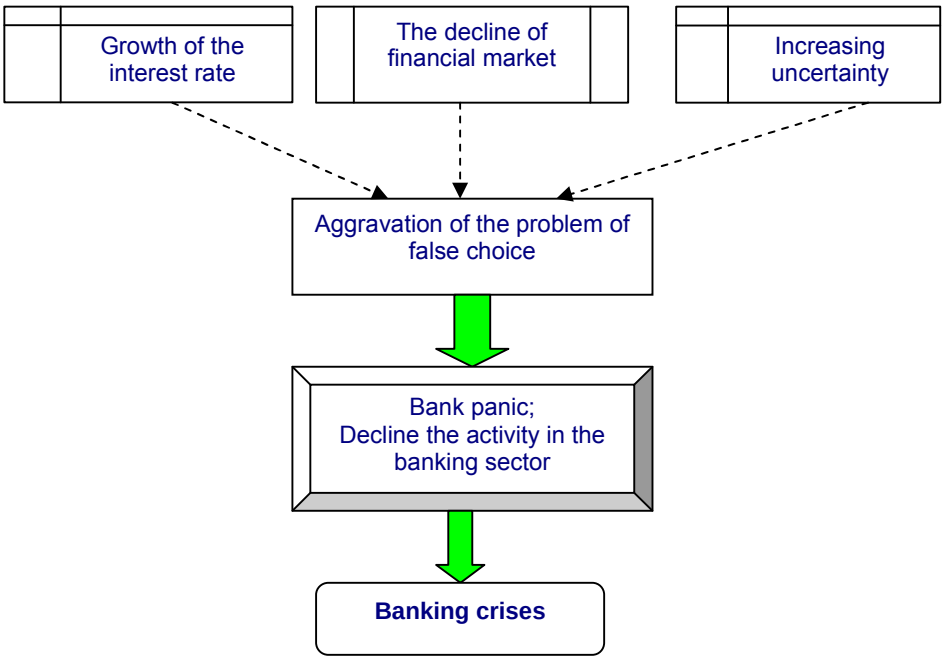
Growth of the interest rate
The decline of financial market
Increasing uncertainty
Aggravation of the problem of false choice
Bank panic;
Decline the activity in the banking sector
Banking crises

Figure 2. Stages of development of a banking crisis

Therefore, the countries in transition need most recognition of the special status of their system of crisis of the banking sector. Rapid political and economic decisions directed at restructuring commercial lenders are required not only to consolidate the banking system, but also to restore the stability of credit and cash-payment sphere. From this, we can say that another important feature for overcoming the banking crisis in the transition countries is to ahead the overcoming of unresolved problems in the organization of settlement and payment sphere, covering the banking sector, along with the real economy and public finances.

Results obtained

We can formulate few lessons of the last crisis, most clearly manifested in our country and in many foreign countries.

First, financial crisis, as a rule, being a consequence of the economic crisis, in the modern world can become the first cause of it. That's why, for maintaining a sustainable economic development (or to prevent its decline) is extremely important to be a stable and effective functioning of the banking system, of the financial markets, providing its liquidity, and the continuity of the performance of their functions;

Second, to the systemic banking crisis, as well as to appearance of problems at individual banks, it is necessary to prepare in advance, giving to the supervisor organs and to other members of the system to maintain financial stability with necessary powers, wide tools, instruments and sufficient resources, including mechanisms for early detection of banks problem (such called early warning systems), immediate supervisory action (such as prompt corrective actions), the orderly liquidation insolvent credit institutions;

What we observed in the first phase of crisis development - it was in most cases forced actions, in the conditions of absence of prepared instruments for solving arising problems. A such situation was in the U.S.A. and in the UK.

Third – it is necessary a complex regulatory and supervisory system, providing early detection and adequate regulation to systemic risks and threats that arise due to the emergence of financial innovation, the distribution of new financial products, changes in business processes and practices of activities of financial institutions;

The result of this need, in particular, was the creation of the Council for Supervision of the Financial Stability in the United States, the European Council for Systemic Risk, the Council for Financial Regulation and Systemic Risks in France;

Fourth - large, systemically important banks and financial groups require special regime of prudential regulation and supervision, and failure regulation. However, non financial institution should not be considered “too big and too complex to fail”.

Insufficient efficiency of the consolidated supervision in the conditions of lack of transparency of property structure and intra-group relationships can increase systemic risks, threatening the stability of the financial system as a whole.

Of the need for special attention to systemically important financial institutions is confirmed by the work, provided in this area by the Council of Financial Stability, published in November 2010, recommendations to strengthen the supervision of such institutions and the solutions of “Big Twenty”, where, at its summit in Seoul has adopted these recommendations, noting that for reducing of moral risk, created by systemically important financial institutions, and the solving of problem of “too big to fail” requires a complex system, combining the “mechanism of bankruptcy procedures and other measures, ensuring a safety and quickly elimination of all financial institutions, without destabilizing the financial system, without putting taxpayers at risk of loss; requirement that systemically important financial institutions ... must have a wide set of instruments to cover losses in order to calculate a greater risk that the bankruptcy of these firms creates for the global financial system; a solid base of infrastructure for financial market for risk reducing associated reactions, related to bankruptcy of individual firms; and other additional prudential and other requirements, set by national authorities, which in some cases may include additional liquidity deductions, tighter restrictions for large open positions, accumulations and structural measures”.

It should be mentioned that in this sphere must be done much things and in Republic of Moldova. It would be useful to define the concept of “systemically important financial institutions (groups)”; it needs to be better elaborated the state policy related to such organizations;

Fifth - for visible liquidity problems, which worsened during the crisis period and determined governments and central banks to provide unprecedented support for a large number of banks, often hidden real internal problems, namely excessively risky banks policy;

And finally, the sixth - the effective functioning of the system of deposit insurance is capable of exerting a significant stabilizing effect on the banking system and social stability in society. This is confirmed by the experience of national and international practice in general.

Macro prudential policy is called to identify and mitigate risks for systemic stability, reducing costs of the economy in case of failures in provision of financial services, representing the base for work of the financial markets (such as the credit provision, as well as insurance and payment services [4].

Concept of macro prudential approach – is not a novelty [1], but only after the global financial crisis, governing authorities are fully aware of the probability and costs of system failure in modern financial markets and the need for controlling systemic risk. As a result, this approach is still in the development stage [3].

Taking in consideration fact that macro prudential policy is at an early stage of implementation, it must solve three important tasks before it can become effective:

- construction – or improvement – its institutional basis;

- development of an analytical basis for the effective monitoring and assessment of systemic risks for direction of corresponding policies measures;

- realization of international cooperation.

Creating an analytical basis that would early detect systemic crises and would involve instruments of macro-prudential policy on time, is one of the priority problems that should be solved not only at national level but also at global level.

Have been made attempts to develop a single indicator of the general systemic risk, which could activate the macro prudential intruments. But in spite of attractiveness of such statistics - because it would be easy to explain and use for assessing the effectiveness of measures of this policies – has not found yet such an indicator.

Instead of this, governing authorities tend to use a set of indicators [5]. This approach recognizes that systemic risk is not limited to one aspect.

Additional information can also help governing authorities to determine which tool or combination of tools most effectively decided potential problems. For example, for measuring the overall risk, macro prudential authority should monitor the overall credit risk, liquidity risk and market risk, and the concentrations of any of these risks in a particular sector, such as housing or consumer credit. Then he has to analyze these risks, in order to decide witch is the most effective policy instruments for their overcoming.

Even the best of macro prudential policy is not able to prevent all financial crises. This means that its need a reliable and flexible creditor of last resort - usually the central bank - to solve the temporary liquidity shortages. More, macro prudential policy does not operate in a vacuum. Prudent monetary and credit policy, fiscal policy and expenditure policy are necessary for creating sustainable conditions, able to develop a health financial system.

Conclusions

Finally those reported suggests us the idea that the systemic banking crisis is a negative phenomenon that have consequences on the global level, being closely correlated with macroeconomic policy promoted by the state.

Those analyzed in this study allow to note that the impact of systemic banking crises on macroeconomic policy is one considerable, being affected the banking sector and generating expansion of "speculative" business.

Degree of impact of the crisis on the banking system depends on many factors, such as micro -and macro. But the main reason - the situation of the economic system of the country at the beginning of the crisis. Countries with market economies have certain measures to prevent the banking crisis. Countries with economies in transition also need to develop their own economic strategies, taking into account international experience already existing.

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THE IMPACT OF EU FUNDS ON ROMANIAN ECONOMY

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Abstract

This study analyzes the influence of European funds on growth and multiplier of funds that bring added value in economy. We perform a quarterly database of European funds attracted during 2007-2014 detailed on agricultural and structural funds.

It is describe in detail: 1) Communitarian Budget, 2) National Budget, 3) European Funds, 4) The financial perspective, 5) Absorption of funds.

We present in detail budget and cash flow of European and national co-financing.

We apply econometric techniques to show the influence of European funds on GDP and their forecast for the next years. We will use quantitative forecasting methods, extrapolation methods, Box-Jenkins methods of control.

Keywords: European funds, macroeconomic, co-financing, econometric techniques

JEL classification: E1, E5, E6

Introduction

Macroeconomic effects of the Structural Funds are complex, depending on economic and political context and the Member State. Transfers from the EU budget are in most cases beneficial for growth in the Member States and can sometimes have negative effects.

The so-called "Dutch greenhouse" explains where an excess demand in a particular sector could lead to a strong impact on inflation and the decline may reflect other sectors. Therefore, it can seriously affect both the structure and the economic growth of the country.

When there is an important conflict of interest between authorities at different levels, decisions taken at national level could end up contradicting local preferences, thus causing significant side effects at the macro level.

Financial Perspective 2007-2013 brought Romania to around 25 billion euros 30.09.2014 European funds, and our country has contributed to the EU budget by about 10.5 billion euros, paid from the state budget.

Maximum absorption capacity share of GDP for allocating structural and cohesion funds established by the European Union is 4% of the GDP of the Member State.

In this paper we will try to detail the components of the absorption of structural and cohesion funds, and the agricultural funds.

The impact was positive but different for the Member States receiving funds due to its absorption of European funds and their distribution by destination, infrastructure development, human resources, agriculture and other economic activities.

Economic and mathematical models are used to analyze national macroeconomic system and the effects of structural funds.

Econometric models are used successfully when there is long time series calculated standard methodology for the variables involved.

General equilibrium models are used to pay off when sectorial breakdown and the number of variables of the system are high.

Short time series do not lead to some good estimates of the coefficients of behavioral equations. In such situations, many coefficients are calculated using simple theoretical estimates.

For testing stationarity of the variables used in the econometric estimates used in the equation co integration relationship between non stationary variables.

Structural and Cohesion Funds have an impact on economic growth both on the demand side and supply.

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Multiplicative effect of European funding components induces domestic consumption effects: investment, private consumption, import and the output of the internal and national income. Offer potential will increase.

Economic and social cohesion policy of the EU increases and improve infrastructure, representing an input for the private sector. Private sector can increase productivity by investing in human resources improvement. They also stimulate investment, research and development through financial assistance to firms.

The types of expenditure under operational programs that the model treats are investing in infrastructure, investment in human resource development, funds for investment in industry, agriculture and services market.

Sources of funding for this expenditure are the transfers from the EU budget and national co-financing is 2 ways, public and private.

Comparing the two scenarios, one "with" structural funds and the other "no", the difference between them can be regarded as the macroeconomic impact of structural and cohesion funds.

However the practice of EU Member States has shown that the prosperity of an economy is much higher absolute amount drawn from the EU budget through operational programs. European funds are in euros and for currency non-euro states; the effects are stronger domestic currency, to balance the balance of payments, forgetting any of these investment multiplier especially in infrastructure, which have high added value.

Decisive contribution to economic growth gap between the demand scenario involving EU funds and that no funds have investments, gross capital formation in particular, while private consumption has a lower intake.

On the supply side, the effects will influence the absorption of funds especially external trade, manufacturing, which have a higher output than ascending brought services.

European funds and create new jobs. Employment growth will lead to future economic growth.

Applying the model of macroeconomic impact assessment EU structural funds for Romania

Structural Funds received from the EU represents percent to 4% of GDP and are used for investment in infrastructure, human resources, research and development, manufacturing, technical assistance. Model simulations show that the impact of these funds generally represents significant gains in production, both short term and long term.

We analyzed the payments made in the period 2007-2013 divided by economic sector for the new Member States (Romania, Bulgaria, Czech Republic, Poland, Hungary, Slovenia, Slovakia, Estonia, Latvia and Lithuania).

Table 1

Payments made in the period 2007-2013 divided by sectors (%)

	Bulgaria	Czech	Estonia	Latvia	Lithuania	Hungary	Poland	Romania	Slovenia	Slovakia	Average new Member States
Technical Assistance	5,6	6,2	2,1	2,4	4,2	4,6	4,7	5,5	4,6	4,6	4,5
Industry	3,8	3,1	2,2	1,2	4,3	7,8	4,3	6,2	5,0	4,4	4,2
Services	4,6	7,7	5,3	1,2	4,4	4,5	7,6	5,0	4,4	6,9	5,2
Research and Development	6,1	13,8	18,4	17,0	16,1	7,7	14,0	4,8	21,5	12,4	13,2
Infrastructure	58,4	53,8	59,0	65,0	57,0	60,0	55,4	60,0	49,2	58,5	57,6
Human Resources	21,5	15,4	13,0	13,2	14,0	15,4	14,0	18,5	15,3	13,2	15,4

Table own made of model data Varga-Veld

Calculating an average of Member States for dividing the percentage of payments made in the 2007-2013 economic sectors, we can say that 57.6% of the structural and cohesion funds are distributed infrastructure, human resources 15.3%, 13.1% research - development services 5.1%, industry 4.2%, 4.4% technical assistance.

The percentages allocated to Romania for Infrastructure, 60% and 18.5% than the average HR of the new Member States are well below average R & D only if 4.8% to 13.1%.

In the 2007-2013 financial perspective there were three financial instruments known as Structural Funds: European Regional Development Fund (ERDF); European Social Fund (ESF); Cohesion Fund (CF) and two complementary actions: European Agricultural Fund for Rural and Development (EAFRD) and European Fisheries Fund (EFF).

In 2007 -2013 financial perspective, the total amount of EU funds allocated to Romania was 38 billion, of which EUR 19.67 billion earmarked for FSC.

The new financial framework established for each of the years covered in the 2014-2020 period and for each chapter, the amounts of expenditure commitments.

The total expenses are denominated in global annual commitment and payment appropriations.

As in the national budget in the Community budget is the maximum loan commitment of expenditure that may be incurred or more simply, is the maximum that can be signed contracts during the financial year within the limits approved.

The loan payment is the amount approved in the budget, representing the maximum limit up to which you can order and make payments during the fiscal year for commitments made during the budget year and / or in previous years for the multi annual.

Table 2

The Indicative Financial Allocations by Operational Programs 2014 – 2020

Operational Programs (OP)	Type of Fund	Total allocation (billion Euro)
Large infrastructure OP	European Cohesion Fund (CF)	6,98
Human Capital OP	European Social Fund (ESF)	2,18
Administrative Capacity OP	ESF	0,96
Regional Operational Programs	European Regional Development Fund (ERDF)	6,99
Competitiveness OP	ERDF	1,35
Technical Assistance OP	ERDF	0,30
European Territorial Cooperation	ERDF	0,60
TOTAL Cohesion Policy	ERDF,ESF,CF	19,36
Rural Development OP	EARDF	6,60
Fishing OP	EFP	0,22
Direct payments	EFGA	10,39
TOTAL Agricultural and Fishing Policy	EARDF, EFP	17,23
TOTAL NET	ERDF, ESF, CF, EARDF, EFP	36,59
Connecting Europe	CF	1,00
Performance Reserve	ERDF, ESF, CF, EARDF, EFP	1,97
TOTAL BRUT	ERDF, ESF, CF, EARDF, EFP	39,56

Source: interactive database MFP

Although the 2007-2013 financial perspective ended, n + 2 rule allows the Member State allocations to be used in ceiling contracting and what not contracted to be considered "deployment" disengagement.

In the following tables we calculated estimate payments in the next 2 years based on management contracting by the authorities. The situation is for each operational program and by source of funding (2014 - 2016), and co, the amount will be provided by Romania of the state budget are 15% of the payments made by the European Union.

To see more clearly the impact of these amounts on the economy has transformed the amounts in lei into euros using the InforEuro used by the European Commission for Financial Programming and Budget.

Table 3

Forecast of payments on Operational Programs and source of financing 2014-2015

PO	2014			2015		
	EU Payments	Co financing State Budget	Total	EU Payments	Co financing State Budget	Total
POR	909115415	144411215	1297947528	589819091	69816818	767459773
POSM	1193170138	320841257	1913692512	982710000	161502727	1370218636
POSDRU	175266401	24771985	200038386	159090909	33636364	192727273
POSCCE	551844119	105435387	758495585	470000000	87000000	667000000
POST	1368089179	205313377	1950895169	1753977273	263096591	2501171591
POAT	36369778	405360	37045378	63181818	909091	64545455
PODCA	85350749	1756559	88998987	82021591	1090909	85157955
TOTAL	4319205779	802935140	6247113545	4100800682	617052500	5648280683

Source: interactive database MFP

Table 4

Forecast of payments on Operational Programs and source of financing 2016

	2016			2014 -2016	
	EU Payments	Co financing State Budget	Total	EU Payments	Co financing State Budget
POR	486009000	61438000	642332000	7118140000	1009890000
POSM		717033000	1751964000	9622196000	2852340600
POSDRU	638000000	146,000,000	784000000	2116270455	404000000
POSCCE	1864045550	344848427	2681893976	6382509361	1195834262
POST	4500000000	675000000	6417000000	18292500000	2743875000
POAT	100000000	8000000	108000000	539500000	13800000
PODCA	120000000	1500000	124500000	859895000	14100000
TOTAL	7708054550	1953819427	12509689976	44931010816	8233839862
				65102432678	

Source: interactive database MFP

Legend

POR: Regional Operational Program
POM: Environment Operational Program
POSDRU: Developing of Human Capital Sectorial Operational Program
POST: Transport Sectorial Operational Program
POAT: Tehnical Assistance Operational Programme
PODCA: Administrative Capacity Operational Programmer

Although estimates so far proved unrealistic over time, we can say that the payments made by the European Commission in Romania Structural and Cohesion Fund is an upward trend, and contractions were performed in 90%, by therefore there is every chance that during 2014 - 2016 to have a positive scenario. After analyzing the data calculated in the scenario above we can conclude that in the years 2014-2016 GDP will increase by 10 billion euros by structural and cohesion funds, representing more than 3% of annual GDP. Co-financing from the state budget will be in these three years, about 1.8 billion, which represents a considerable effort of the state.

In the table below we have tried to develop a database of operational programs financed economic sectors, but their share in GDP. Using Eviews and econometric functions we studied the impact of European funds allocated to the sectors concerned. For 2014 we used data forecasting.

Table 5

EU Funds on Economic Sectors, 2007 -2014

- Million lei, actual prices -

	Period		GDP	Agriculture, Forestry and Fishery	Industry	Services	Infra structure	Funds for Agriculture and Rural Development	Structural and Cohesion Funds	Tehnical Assistance	Industry	Services	R&D	Infra structure	Human Resources
1		Q1	74382,8	1955,7	13522,3	51183,0	1957,7	15,0	30,0	1,7	1,9	1,5	1,4	18,1	5,6
2	2007	Q2	93408,5	3720,1	13596,9	56351,4	2565,2	20,0	50,0	2,9	3,1	2,4	2,5	30,1	9,4
3		Q3	112290,9	10487,2	12950,9	54044,6	2610,0	23,3	1160,5	63,7	71,9	58,1	55,7	696,2	214,6
4		Q4	135924,6	7749,3	13173,2	60926,5	2560,2	51,1	263,8	14,5	16,5	13,2	12,6	158,3	48,7
5		Q1	93483,6	2127,7	14593,9	58505,6	1982,2	23,9	1940,4	106,6	121,3	97,1	93,1	1164,1	359,0
6	2008	Q2	117510,0	5123,6	18201,5	70598,8	3575,8	121,0	398,6	21,8	25,7	19,8	19,1	239,2	73,8
7		Q3	142259,8	14820,0	18748,8	77095,6	3540,3	3181,1	23,8	1,5	1,4	1,2	1,1	14,3	4,4
8		Q4	161446,6	12055,1	19173,7	94218,5	4910,6	244,3	20,0	1,1	1,3	1,0	1,0	12,1	3,7
9		Q1	93395,9	2334,1	10794,9	60516,9	2493,5	464,6	2440,5	134,4	151,4	122,1	116,1	1464,2	451,4
10	2009	Q2	115299,6	5348,3	13356,3	68210,3	3924,8	581,1	1053,1	57,7	65,2	52,6	51,6	631,9	194,9
11		Q3	134339,7	14502,7	13129,0	72997,7	3880,8	2374,2	11,7	0,8	0,8	0,7	0,6	7,1	2,2
12		Q4	158104,2	10112,7	14102,0	90945,1	5359,8	1190,1	186,6	10,5	11,5	9,3	9,0	112,0	34,5
13		Q1	101401,6	3347,6	10561,3	64079,2	1309,0	1568,0	62,7	3,5	3,8	3,2	3,1	37,5	11,7
14	2010	Q2	122651,8	4146,5	12692,2	67825,9	3205,5	741,8	98,4	5,4	6,2	4,8	4,6	59,1	18,1
15		Q3	143084,7	13787,6	12687,4	66229,7	2090,4	2037,1	1470,9	80,8	91,2	73,3	70,6	882,6	272,1
16		Q4	156555,2	8592,5	15038,8	72276,5	3639,3	1700,4	509,0	27,9	31,6	25,7	24,4	305,4	94,2
17		Q1	108434,0	1945,1	12270,7	61052,3	2247,7	1990,0	785,5	43,4	48,8	39,3	37,6	471,2	145,2
18	2011	Q2	129229,6	4715,7	12521,7	69132,2	2807,1	1542,2	448,8	24,7	27,7	22,3	21,5	269,4	83,1
19		Q3	154261,6	19987,2	13550,3	67516,3	2948,3	1013,3	270,9	14,8	16,8	13,6	13,1	162,5	50,1
20		Q4	165423,0	9693,6	15325,0	72082,5	2981,4	2480,7	1513,8	83,3	93,9	75,7	72,7	908,3	280,0
21		Q1	111661,5	2131,1	11682,5	64061,1	2636,1	2006,9	892,3	49,3	55,4	44,6	42,7	535,3	165,2
22	2012	Q2	138486,1	4327,6	12928,6	71131,3	2310,8	903,6	2191,2	120,5	135,8	109,6	105,3	1314,8	405,3
23		Q3	162225,7	14296,7	14459,9	72497,0	2943,6	909,9	463,2	25,5	28,7	23,2	22,2	277,9	85,7
24		Q4	174376,6	7882,7	16032,2	77746,8	3104,2	1010,8	1514,1	83,6	93,9	75,5	72,7	908,4	280,1
25		Q1	120142,3	2082,0	13115,7	67817,3	2455,2	654,6	1469,4	80,6	91,2	73,7	70,4	881,7	271,7
26	2013	Q2	146290,1	5177,2	14676,6	74528,2	1896,0	2017,6	1887,9	103,8	117,1	94,4	90,7	1132,7	349,4
27		Q3	171539,4	14609,2	16543,9	76967,7	2750,8	745,0	5156,7	283,2	319,6	257,8	247,5	3094,1	954,0
28		Q4	183158,3	13380,8	17642,6	84549,7	3383,0	2017,4	4654,7	256,4	288,6	232,7	223,4	2792,7	861,1
29		Q1	123746,6	2106,9	11996,8	5524,9	2285,6	680,8	1763,3	96,9	109,4	88,2	84,7	1058,0	326,3
30	2014	Q2	160678,8	5587,8	15502,4	7150,8	2967,8	2098,3	2265,5	124,7	140,5	113,4	108,8	1359,4	419,1
31		Q3	186685,6	14485,8	18023,1	8309,9	3448,2	874,8	6188,1	340,2	383,6	309,4	297,0	3712,7	1144,7

Source: own processing interactive data base of MFP

To smooth the data series and blur seasonality, cyclical influences, we went to annualized series and calibration coefficients.

Table 6

Annualized Data – Level

Period		GDP	AGR_anualiz	GDP-Agriculture	EU Funds for Agriculture and Rural Development	Structural and Cohesion Funds	Fond_Agric_anualiz_7	Fond_Struc_anualiz_50
2008	Q3	489178,0	29820,6	459357,4	3377,1385462	2626,64214	23639,970	131332,110
	Q4	514700,0	34126,4	480573,6	3570,2885144	2382,86888	24992,020	119143,440
	Q1	514612,3	34332,8	480279,5	4011,0308988	2882,96526	28077,216	144148,260
2009	Q2	512401,9	34557,5	477844,4	4471,1060306	3537,48621	31297,742	176874,310
	Q3	504481,8	34240,2	470241,6	3664,2058146	3525,38529	25649,441	176269,260
	Q4	501139,4	32297,8	468841,6	4609,9668606	3692,02093	32269,768	184601,000
	Q1	509145,1	33311,3	475833,8	5713,3865492	1314,25375	39993,706	65712,688
2010	Q2	516497,3	32109,5	484387,8	5874,1521219	359,528487	41119,065	17976,424
	Q3	525242,3	31394,4	493847,9	5537,0219700	1818,71454	38759,154	90935,727
	Q4	523693,3	29874,2	493819,1	6047,3237694	2141,08989	42331,266	107054,490
	Q1	530725,7	28471,7	502254,0	6469,3100388	2863,86659	45285,170	143193,330
2011	Q2	537303,5	29040,9	508262,6	7269,6945621	3214,22492	50887,862	160711,250
	Q3	548480,4	35240,5	513239,9	6245,8748808	2014,17694	43721,124	100708,850
	Q4	557348,2	36341,6	521006,6	7026,2656475	3018,92236	49183,860	150946,120
	Q1	560575,7	36527,6	524048,1	7043,1058478	3125,67129	49301,741	156283,560
2012	Q2	569832,2	36139,5	533692,7	6404,5454513	4868,05397	44831,818	243402,700
	Q3	577796,3	30449,0	547347,3	6301,1968366	5060,39018	44108,378	253019,510
	Q4	586749,9	28638,1	558111,8	4831,2000542	5060,68489	33818,400	253034,240
	Q1	595230,7	28589,0	566641,7	3478,9056644	5637,79096	24352,340	281889,550
2013	Q2	603034,7	29438,6	573596,1	4592,8307578	5334,57066	32149,815	266728,530
	Q3	612348,4	29751,1	582597,3	4427,8774949	10028,07900	30995,142	501403,950
	Q4	621130,1	35249,2	585880,9	5434,4777769	13168,77680	38041,344	658438,840
	Q1	624734,4	35274,1	589460,2	5460,6608373	13462,65220	38224,626	673132,610
2014	Q2	639123,1	35684,8	603438,3	5541,3638263	13840,23900	38789,547	692011,950
	Q3	654269,3	35561,3	618708,0	5671,1628646	14871,58240	39698,140	743579,120
	Q4	660064,0	37364,2	622699,9	5661,8568880	15802,53220	39632,998	790126,610

Source: Data processing by annualized series econometric data and calibration coefficients

Enter the equation temp variable (time) to reduce the seasonality.

Calculated data stationarity and Unit Root test results from applied regression of Agriculture and European funds for agriculture, an R2 = 0.65 represents an important link between the two variables, and DW = 1.14, error autocorrelation poor.

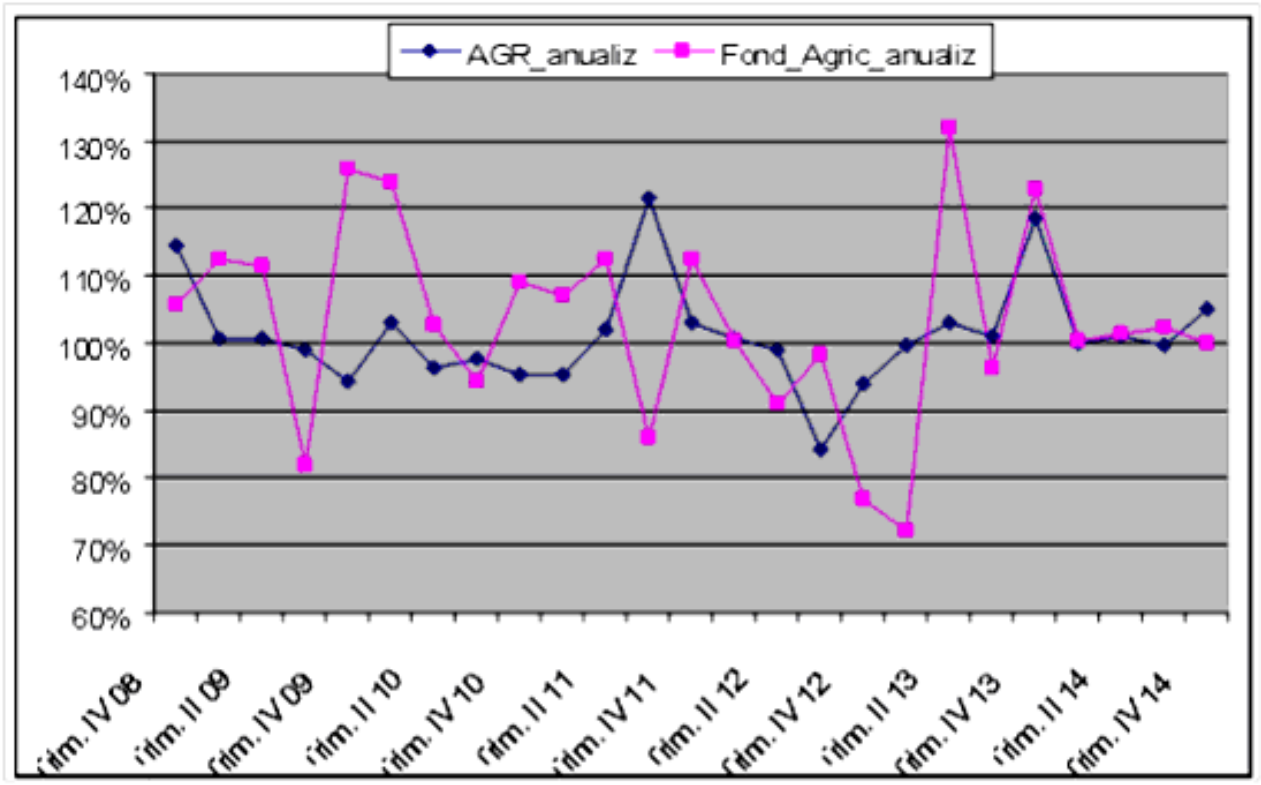

Figure 1. Agricultural Funds from EU and Value Added in Agriculture, Index of Growth

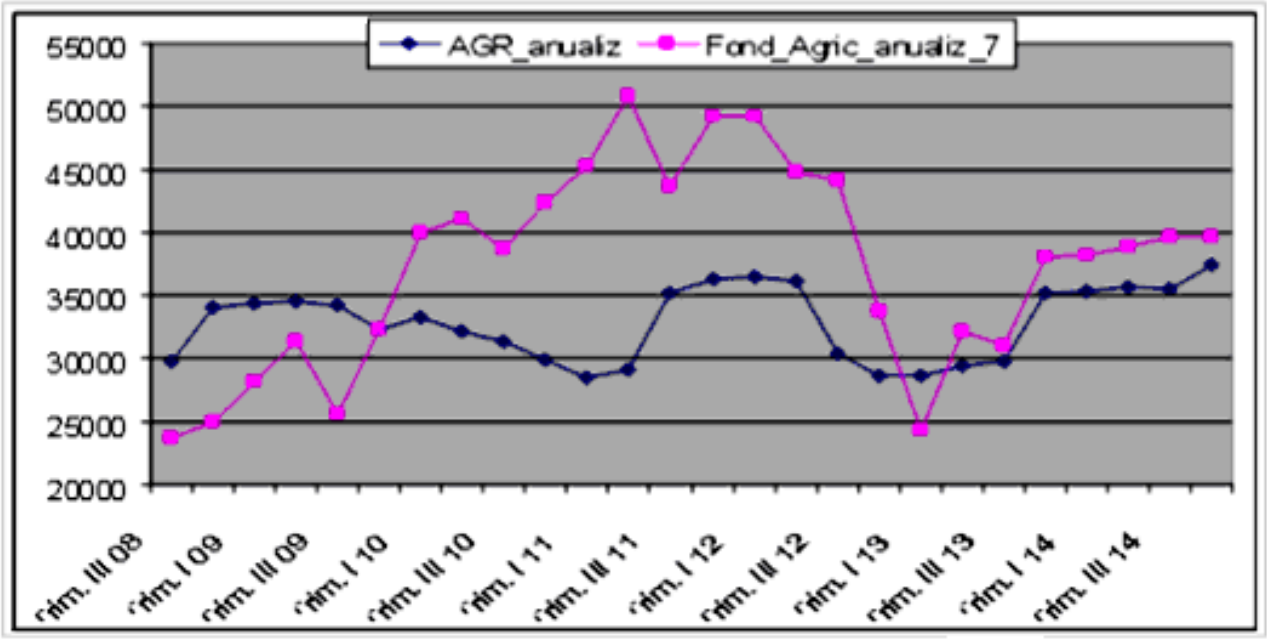

Figure 2. Agricultural funds from EU and value added in agriculture, after calibration of the coefficients, quarterly annualized data

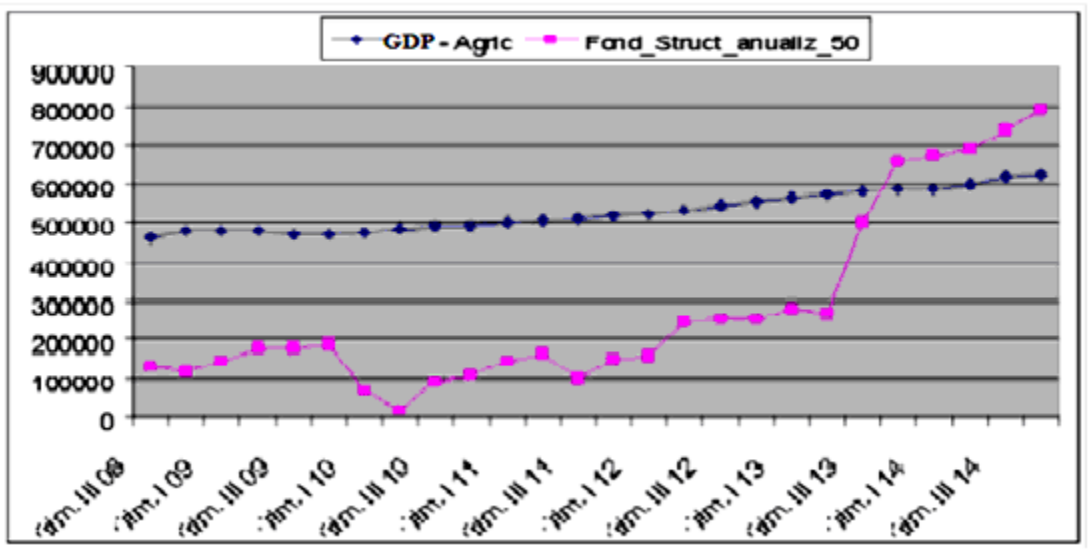

Figure 3. Structural funds from EU and the value GDP – value added of agriculture, after calibration of the coefficients, quarterly annualized data

Estimation Command:

==========

LS AGRIC_AN C FOND_AGRIC_AN TEMP

Estimation Equation:

AGRIC_AN = C(1) + C(2)*FOND_AGRIC_AN + C(3)*TEMP

Substituted Coefficients:

AGRIC_AN = 26121.75389 + 1.372786524*FOND_AGRIC_AN - 92.38535166*TEMP

Dependent Variable: AGRIC_AN
Method: Least Squares
Date: 10/28/14 Time: 14:43
Sample: 2007Q4 2013Q4
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26121.75	1471.783	17.74838	0.0000
FOND_AGRIC_AN	1.372787	0.361367	3.798870	0.0010
TEMP	-92.38535	101.3754	-0.911320	0.3720

R-squared	0.646976	Mean dependent var	31337.04
Adjusted R-squared	0.596701	S.D. dependent var	3697.844
S.E. of regression	2872.200	Akaike info criterion	18.87571
Sum squared resid	1.81E+08	Schwarz criterion	19.02198
Log likelihood	-232.9464	F-statistic	8.890648
Durbin-Watson stat	1.136005	Prob(F-statistic)	0.001480

We used the test Durbin - Watson (DW) for checking errors in linear regression autocorrelation value added in agriculture according to the agricultural funds and time variable.

The values of this test depends on the level of significance set, the number of observations in the sample and the number of variables influence of linear regression.

One of the reasons is the neglect of autocorrelation errors independent variables with significant influence on the dependent variable.

If the variables are close to DW 2 autocorrelation can be considered absent.

The coefficient of determination R2 is calculated using the total variance decomposition of the scattering of the observed versus the theoretical and theoretical dispersion from the mean values.

This coefficient R 2 represents how much of the total variance can be explained by the variation of chosen factors and is calculated as the ratio between the total deviation of the calculated values and deviation.

Adjusted R2 coefficient is calculated by adjusting the corresponding degrees of freedom violations.

The link is particularly strong between the dependent variable and the explanatory variables of the model as the coefficient of determination approaches 100%.

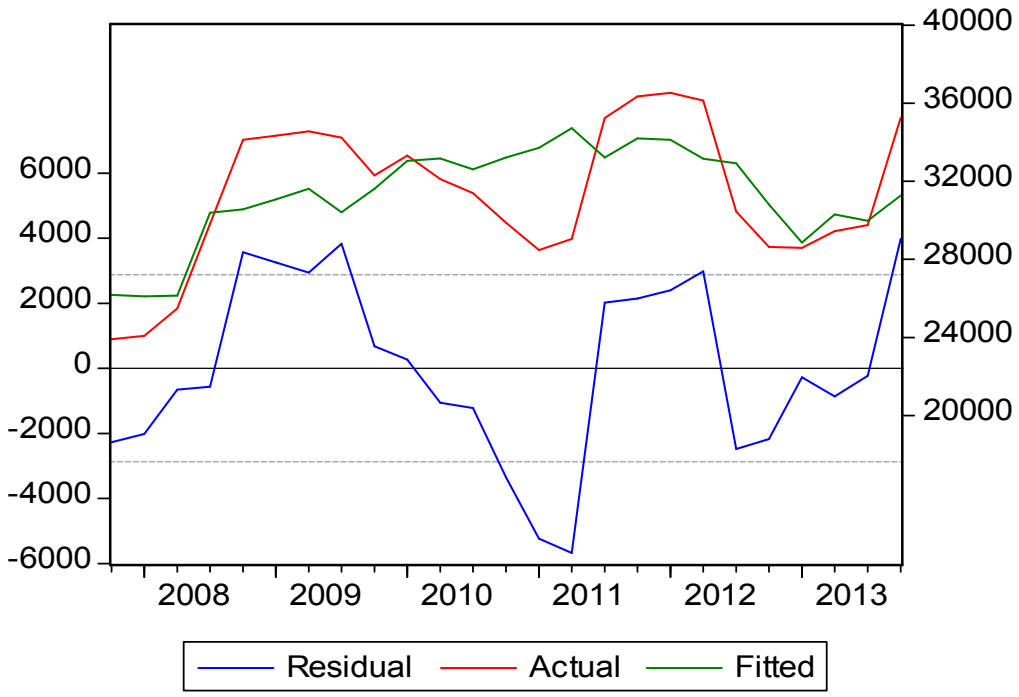

Figure 4. Diagram representing EVIEWS equation:
AGRIC_AN = C(1) + C(2)*FOND_AGRIC_AN + C(3)*TEMP

Estimation Command:

LS NONAGRIC_AN C FOND_NONAGRIC_AN TEMP

Estimation Equation:

NONAGRIC_AN = C(1) + C(2)*FOND_NONAGRIC_AN + C(3)*TEMP

Substituted Coefficients:

NONAGRIC_AN = 424680.4542 + 2.411361815*FOND_NONAGRIC_AN + 5426.34451*TEMP

Dependent Variable: NONAGRIC_AN
Method: Least Squares
Date: 10/28/14 Time: 14:41
Sample: 2008Q2 2013Q4
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	424680.5	4769.611	89.03881	0.0000
FOND_NONAGRIC_AN	2.411362	0.981904	2.455803	0.0233
TEMP	5426.345	402.9794	13.46556	0.0000

R-squared	0.951850	Mean dependent var	510236.0
Adjusted R-squared	0.947035	S.D. dependent var	42495.86
S.E. of regression	9780.027	Akaike info criterion	21.33518
Sum squared resid	1.91E+09	Schwarz criterion	21.48329
Log likelihood	-242.3546	F-statistic	197.6853
Durbin-Watson stat	1.205532	Prob(F-statistic)	0.000000

After the Unit Root test applied regression of GDP Non Agricultural and non agricultural European funds (structural) resulted in a R 2 = 0.95 and a DW = 1.20.

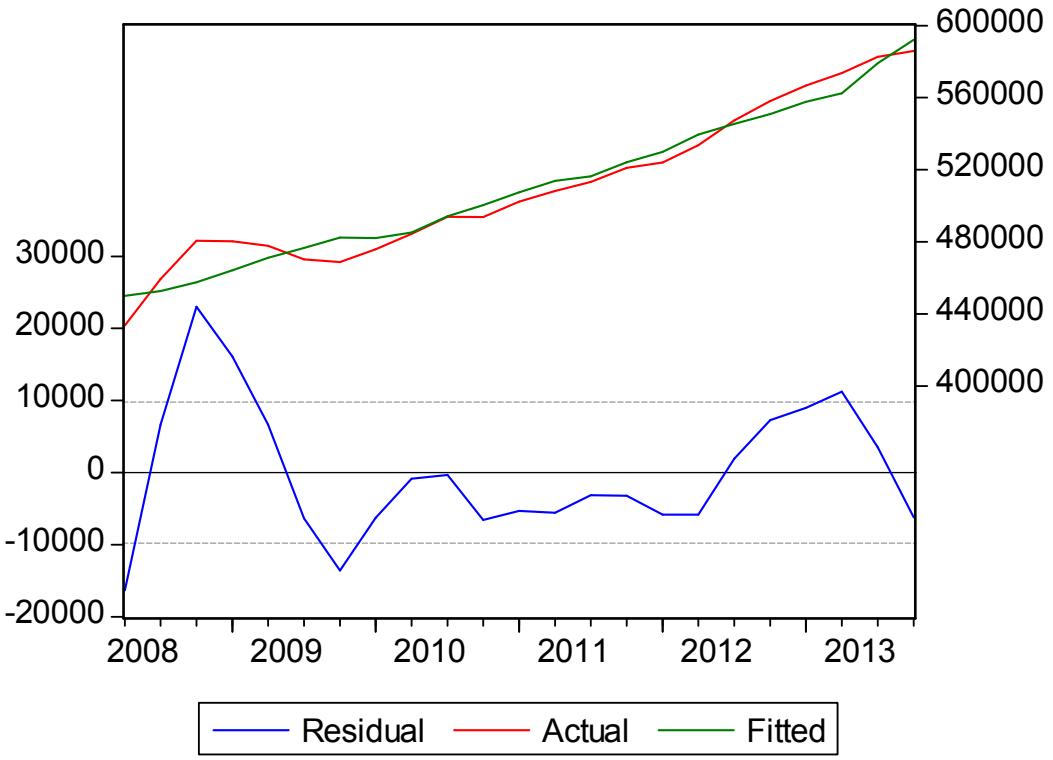

Figure 5. Diagram representing EVIEWS equation:
NONAGRIC_AN = C(1) + C(2)*FOND_NONAGRIC_AN + C(3)*TEMP

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DECENTRALISATION AND LOCAL FINANCIAL AUTONOMY – OPPORTUNITY FOR ADMINISTRATIVE UNITS OF THE REPUBLIC OF MOLDOVA

Tatiana MANOLE[41]

"In the frame of national economic policy, authorities from local government have the right for own resources, sufficient, which may have freely in the execution in their duties"
(European Carta of Local Self-Government
Strasbourg, 15.X.1985, article 9, p.1.)

Abstract

In this article is investigated the process of elaboration of local government budgeting in terms of autonomy and fiscal decentralization. The new funding formula of territorial administrative units increase stimulus of administrative units to supplement local incomes and improve their services. Motivation is supported by indicators underlying the calculation of financial balance transfers: fiscal capacity per capita, area and population of that territory - all of these indicators are calculated in relation to national indicators.

Keywords: administrative territorial unit, fiscal capacity per capita, general transfers (equalization), special transfers, specific weight, distribution parameter, the fund for financial support

JEL Classification: H5, H77

In Moldova, the amendments to the Law no. 397-IV of October 16, 2003 on Local Public Finance and Tax Code 1163-XIII of April 24, 1997, there have been significant changes in the way of budgeting administrative units both income formation ATU budgets and the expenses. Completely new is the method of calculating equalization transfers and transfers to special purpose. The new vision creates real opportunities for strengthening the financial autonomy and fiscal decentralization.

The transition to the new formula of budgeting administrative units has started drafting ATU budgets for fiscal year 2014. For this purpose, all administrative - territorial units of Republic of Moldova received indication from the Ministry of Finance to prepare draft budgets for fiscal year 2014 in two variants: Variant I - the existing formula and variant II - after the new funding formula.

Distinct budgeting for administrative territorial units highlights new conditions determined by the new method of calculating general transfers (equalization) and special transfers for both: level I and level II.

Talking about calculating the general transfers (equalization) for administrative territorial units (ATU) of first level is noted that for the calculation of equalization transfers are counted three financial indicators, such as:

- Fiscal capacity per capita (measured as revenue collected from income tax deductions of individuals and number of inhabitants of ATU);

- Concrete land area;

- Number of population of a specific territory.

These indicators find expression in the new formula for calculating general transfers (equalization). In addition to these indicators "local" in the formula are found weighted indicators specified as:

PS^1_{CFL} - specific weight indicator per capita of fiscal capacity;

PS^1_p - specific weight of the population indicator;

PS^1_s - specific weight of the area indicator;

P_e - supraunitar parameter;

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where,

PS^1_{CFL} = 80 %;

PS^1_p = 10 %;

PS^1_s = 10 %;

P_e = 1,3.

Below we present the method of calculating equalization transfers for ATU level I (A); level II (B) and special purpose transfers (C).

A) Calculation of general purpose transfers (equalization) for ATU first level:

Step 1. Calculation per capita of fiscal capacity for each capita of ATU of first level- CFL_i, as a ratio of tax revenue collected from the breakdown of personal income in the territory of the ATU and respective number of inhabitantsof ATU;

Step 2. Calculate the capacity of national fiscal average per capita of all ATU at first level - CFL_n, as the ratio of revenue collected from income tax deductions of individuals pooled from all ATU first level and the number of cumulative population of all ATU first level.

According to the data execution for 2012, CFL_n used to calculate transfers for 2014 is equal to 107.3 lei.

Estimated value of CFL_n used to calculate transfers for 2015 and 2016 is equal to 113.6 lei, respectively, 124.6 lei.

Step 3. Calculate the product of greater than one parameter CFL_n and P_e = 1.3;

Step 4. For all ATU of first level is calculated expression (difference):

$$(P_e \ x CFL_n) - CFL_i \ ;$$

Step 5. Calculate the expression $\sum_i$ (Pe x CFL_n - CFL_i), expression summand only positive values calculated above (Pe x CFL_n - CFL_i), thus not included in ATU of first level, where the expression (Pe x CFL_n) - CFL_i) < 0 (negative).

According to the 2012 execution of the expression $\sum_i$ (Pe x CFL_n - CFL_i) used to calculate transfers for 2014 is equal to 62 565.3 lei.

Estimated value of the expression $\sum_i$ (Pe x CFL_n - CFL_i), used in calculating transfers for 2015 and 2016 is equal to 66 636.7 lei, respectively, 73 083,2 lei.

Step 6. Calculate the expression $\frac{(P_e \ x CFL_n - CFL_i)}{\sum_i (P_e \ x CFL_n - CFL_i)}$ for ATU first level, where the expression (Pe x CFL_n - CFL_i) > 0 (positive), and if the ATU first level for expression (Pe x CFL_n - CFL_i) < 0 (negative) is automatically assigned the value 0 (zero);

Step 7. For all ATU of first level is calculated expressions:

$$\mathrm{PS}^1_{\mathrm{CFL}} \ x \ \frac{(P_e \ x CFL_n - CFL_i)}{\sum_i (P_e \ x CFL_n - CFL_i)} \ ; \ PS_p{}^1 \ x \ \frac{P_i}{P_n} \ ; \ PS_s{}^1 \ x \ \frac{S_i}{S_n}$$

Step 8. Calculate the expression:

$$[(\mathrm{PS}^1_{\mathrm{CFL}} \ x \ \frac{(P_e \ x CFL_n - CFL_i)}{\sum_i (P_e \ x CFL_n - CFL_i)}) + (PS_p{}^1 \ x \ \frac{P_i}{P_n}) + (PS_s{}^1 \ x \ \frac{S_i}{S_n})]$$ for all ATU first level, so it summarizes the results obtained in step 7);

Step 9. Finally is determined for each of the first ATU the transfer of general purpose by multiplying the result obtained in step 8), according to the formula:

$$TE_i = FEB1 \ x \ [(\mathrm{PS}^1_{\mathrm{CFL}} \ x \ \frac{(P_e \ x CFL_n - CFL_i)}{\sum_i (P_e \ x CFL_n - CFL_i)}) + (PS_p{}^1 \ x \ \frac{P_i}{P_n}) + (PS_s{}^1 \ x \ \frac{S_i}{S_n})].$$

where:

TE_i - balancing transfer for some ATU of first level;

Feb1 – ATU budget fund balance of the first level;

CFL_i - per capita fiscal capacity of some ATU first level;

CFL_n - the national average per capita of fiscal capacity;

P_i - population of a certain ATU of first level;

P_n - total population of administrative-territorial units of the first level;

S_i - particular area of the first level ATU;

S_n - total area of the administrative units of the first level;

PS^1_{CFL} - specific weight of indicator per capita of fiscal capacity;

PS^1_p - specific weight of the indicator population;

PS^1_s - specific weight of the indicator area;

P_e – supraunitar parameter;

B). Transfers of budget balancing for ATU of second level

Feb2 is intended to balance budgets of ATU of second level and is distributed according to the following indicators:

a) population;

b) the area ATU, according to the formula:

$$TE_j = FEB2\ x\left(\frac{PS^2_p\ x\ P_j}{P_n} + \frac{PS^2_s\ x\ S_j}{S_n}\right);$$

$$PS^2_p + PS^2_s = 100\%,$$

where:

Tej - balance transfer for a certain ATU of second level;

Feb2 - fund of balance budgets ATU of second level;

Pj - the population of a certain ATU of second level;

Pn - ATU of the total population of the second qualifying assignment;

Sj - ATU surface of a certain second level;

Sn - ATU total area of the second qualifying assignment;

PS^2_p - Specific weight of the indicator population;

PS^2_s - Specific weight of the indicator area;

where,

$PS^2_p = 60\%$ and $PS^2_s = 40\%$

Calculation of general purpose transfers (equalization) for ATU of second level is directly proportional to the population and ATU area, balancing local budgets being qualified to the second level, with the exception of municipal budgets Chisinau, Balti and autonomous territorial unit budget (ATU) with special legal status.

Calculation of general purpose transfers (equalization) for ATU second level:

Step 1. Calculate expressions $PS_p^2 \ x \ \frac{P_j}{P_n}$ *şi* $PS_s^2 \ x \ \frac{S_j}{S_n}$ for all second level ATU qualifying assignment. Pn and Sn are determined by excluding the population, respectively, surface Chisinau and Balti and Gagauzia, as they are not qualified to allocation;

Step 2. Calculate the sum of expressions $(\frac{PS_p^2 \ x \ P_J}{p_n} + \frac{PS_s^2 \ x \ S_j}{S_n})$ for all second level ATU qualifying assignment;

Step 3. Finally, is determined transfer with general purpose for each ATU second level, qualified at allocation, by multiplying Feb2 with the result obtained in step 2), according to the formula:

$$TEj = FEB2 \ x \ (\frac{PS_p^2 \ x \ Pj}{P_n} + \frac{PS_s^2 \ x \ Sj}{S_n}).$$

C). Special purpose transfers

Special purpose transfers from the state budget is allocated to ATU budgets for funding:

a) primary, secondary, general, special and (extracurricular) education;

b) the power delegated to APL by the Parliament on the Government's proposal.

Information on special purpose transfers from the state budget to local budgets for financing primary, secondary, general, special and (extracurricular) education for 2014 and estimates for the years 2015 to 2016 are presented in Appendix. 2.2. to notes about the development projects of ATU budgets for 2014 and estimates for 2015 and 2016.

At present, establishing relations between the state budget and local budgets, transfers to finance powers delegated to APL are considered:

a) social transfer payments;

b) transfers to compensate for the difference in tariffs for electricity and natural gas (used by residents of localities Dubasari and Căuşeni and Varna village from Anenii Noi district);

c) transfers to compensate for lost revenues of ATU budget (... compensation of local budget income, budget of state social insurance and mandatory health insurance funds, missed about exempting landowners located on route Râbniţa - Tiraspol.;

d) transfers from the republican fund of social support of the population.

In the formulas explained above, may be presented specific calculations to determine general transfers (equalization) for administrative territorial units that have fiscal capacity per capita in different proportions compared to fiscal capacity per capita at the national level. These calculations will highlight the advantages and disadvantages of the new formula of general transfers (equalization) for administrative units with different tax bases. For a summary of the advantages and disadvantages of new ways of funding local authorities, we present a SWOT analysis of this process (figure 1).

Source: based on analysis of the National Decentralization Strategy and the new funding system ATU budgets.

SWOT analysis highlights the range of issues facing local government, but also local authorities have many strong sides which enables them to improve their economic and social situation in the territory. The new system offers these possibilities.

Main findings:

1. The new funding system provides a real local autonomy which gives the right and effective capacity of local authorities to address and manage, on behalf and in the interest of local communities that they represent, public affairs, according to the law.
2. Moreover, local authorities, according to the principle of local autonomy manage if appropriate, and have financial resources and public or private property of administrative territorial unit.

3.The new system also provides financial decentralization, which aims, in fact, increase of quality of public services provided to citizens, which can be achieved by empowering and improving local government and elected officials receiving authority and resources with which to make decisions concerning the provision public service. Of particular importance in this direction have local authorities, who by the practice, the accumulation of domestic and international experience in the field, the management realized to be the main actor in the process.

4.New system of financing of local government is substantiation for the first time the draft budgets according to the procedures and the independence offered by local public finance law. This creates the possibility for local authorities to organize their tax services and offers the ability to exercise fully and effectively all the components and decentralized responsibilities for the establishment, finding, collecting, controlling and tracking local taxes.

SWOT Analysis

Strengths	**Weaknesses**
- Change the motivation of local government revenue generation; - Delimitation of their income levels of ATU; - Norms breakdown of personal income tax is set by law for each level of APL; - Transfers are performed according to a standard formula, which excludes all possibility to benefit someone in some subjective reasons over others; - General transfers calculation (balancing) are taken into consideration following indicators: fiscal capacity per capita, population and territorial administrative unit surface, which gives the possibility that surplus income collected remain in the local budget; - Excluding financial relations of subordination between ATU first level and second level; - New system of financing local authorities ensure autonomy in allocating money from their own income, deductions from income tax of individuals and transfers from the general state budget prioritization of services to the local community; - Expenditure on education are taken by the state and financed by direct special transfers purpose for each local government in part;	- The economic base and therefore tax and the weak of most local governments; - The level of development of UAT is different. The new system provides immediate increase in fiscal capacity of local governments, this requires time and proper effort; - Most APL leaders are accustomed to be financed from the state budget through transfers and changing attitudes to generate revenue in its territory requires will and interest. The new system creates incentives, but also requires efforts; - Local tax collector lacks fiscal instruments influence upon borrowers with low creditorfiness; - Lack of predictability (prediction) of local revenues; - Lack of liquidity (the cash) from the state budget for the full and timely performance of general and special purpose transfers from the budgets of territorial administrative units.
Opportunities	**Threats (risks)**
- Establishing breakdowns of tax income of individuals will stimulate LPA in creating new jobs based on citizens' contribution to the local budget; - Revenues from local taxes are taken into account in the budget leveling therefore appear more possibilities of financing activities of common interest; - Opportunities appears to allocate general purpose transfers directly from the state budget to each local government, by omitting mixture (intervention) of political factor; - New system of revenue sharing and transfers to general purpose computing provides stability, predictability, predictability over several years in developing strategies and development plans of localities; - Local government will have developed its own tax base will allocate additional funds for local schools.	- A key risk is hesitation, uncertainty, doubt, leaders of local government to change, fear that they could apply (face) in place incentives offered. - Implementation of the new system of financing local government requires direct involvement of local government leaders, level I, this requires additional effort that many leaders do not wish to proceed, preferring to maintain the present situation; - The influence of weak and local government levers on reducing tax evasion and the shadow economy; - Discrepancies between local public data and official statistics on population and area administrative units complicates the situation by further calls to flesh indicators needs LPA budgeting; - Limited management capacities of local government. Drivers are not trained, do not have accurate information and skills needed;

Figure 1. SWOT analysis of UAT new funding system

5.His allows correlation of financial resources attracted heritage items of local communities and the need to reorganize and improve the management and quality of public services provided to

the population. Linking local policies with the regional development and sectoral policies, especially in areas like education, welfare, culture also represents an opportunity for the new system that opens new possibilities for local government.

6. Upside of those mentioned we can conclude that fiscal decentralization gives economic benefits to administrative territorial units by improving resource allocation and efficiency of the administration, through the principle of subsidiarity, by transfer of responsibilities to the most appropriate administrative level to ensure maximum performance. Similarly, a decentralized system is beneficial because it can attract more resources locally. So, decentralization is a process of organizational development, a process of transition from one system to one fundamentally different, all done in order to increase the quality of services provided to the community.

7. Obvious that new system of financing local government provides many more advantages and opportunities than disadvantages. Its implementation is a complicated process and requires additional time and effort, but the benefits they provide is worth the effort.

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CURRENCY, FINANCIAL INSTITUTIONS AND NOMINAL ECONOMY

NOMINAL CONVERGENCE CRITERIA AND EUROPE 2020 STRATEGY: CONVERGENT OR DIVERGENT OBJECTIVES?

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Abstract:

Sustainable development is a major subject of discussions worldwide and especially in the European Union. A lot of studies, papers, reports had analyzed the subject of sustainable development and many of the indicators of sustainable development have been transposed in public policies objectives. The Europe 2020 Strategy is such of programmatic document, which contains some of the sustainable development indicators. Though is recognised that supporting economic growth, environmental protection and employment are important, in Europe and whole around the world, fiscal disequilibria and monetary issues seem to come first, as is the case with nominal convergence criteria for the countries in acceding process to the euro area. Thus, this article tries to analyse to what extent Nominal Convergence Criteria affects the sustainable development indicators and especially Europe 2020 targets and what can be done to mitigate the possible conflict between their objectives.

Keywords: nominal convergence, Europe 2020, employment rate, education

JEL classification: F15, O23, Q56

Introduction

Global financial and economic crisis, whose beginning was marked by the collapse of Lehman Brothers in 2008, brought to the forefront many markets inefficiencies, but also of monetary systems, of world economies and of macroeconomic public policies. Indirectly, the euro area (EA) has suffered greatly, thus raising the question of the benefits and costs of euro adoption for future acceding countries, not so much in terms of the European currency crisis, but especially in terms of a takeover of the euro area problems over the national ones.

New Member States, including Romania (which is European Union (EU) member from 2007), have undertaken the obligation of adopting the euro currency. As we know, the EU accession marks the completion of the first stage of joining the Economic and Monetary Union (EMU), thus the member states, which are willing to introduce euro, have to be able to coordinate their economic policies with other countries based on guidelines set by the Commission and to develop and to implement national convergence programs. In the second stage, Members adhere to the Exchange Rate Mechanism (MRS 2), in this respect committing to maintain the exchange rate within a certain band of variation in relation to the euro, national central banks signing an agreement with the European Central Bank (ECB), in which they are taking the obligation to participate in this mechanism. Also in this stage, Member States must fulfil the nominal (monetary and fiscal) convergence criteria, which are stipulated in the Treaty of Maastricht.

In the vision of European leaders, Maastricht convergence criteria describe a "healthy" economy, more exactly a low inflation, attractive interest rates on long-term government securities, a stable exchange rate, fiscal balances and public debt in sustainable limits. Achieving these criteria in a coherent, consistent, transparent and sustainable manner is the basis for assessing the readiness of an economy to adopt the single currency.

It is questionable whether the nominal convergence criteria are set properly, being a series of criticisms regarding them (Lewis and Staehr, 2007, Dinga, 2011). However, it is more difficult to say in which way it affects or not the achievement of real convergence and especially how it affects some indicators of sustainable development.

When referring to some indicators of sustainable development, it should not be overlooked the strategy launched in 2010 called Europe 2020 (European Commission, 2010). This was conceived as a 10-year strategy to support employment and smart, sustainable and inclusive growth. In this respect, Europe 2020 has set five objectives regarding employment, research and development,

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education, climate and energy sustainability issues and also the thorny issue of social inclusion and poverty reduction.

Specifically, the five objectives are:

- Increasing the percentage of the population aged between 20 and 64 years who has a job to 75%;

- Receiving of at least 3% of Gross Domestic Product (GDP) on research and development;

- Reducing carbon dioxide emissions by 20% and even more if conditions allow it, increasing of the proportion of renewable energy to 20% and energy efficiency 20% growth;

- Reducing the early school leavers share below 10% and increasing the percentage of people who completed a form of higher education to 40%;

- A reduction of 20 million people of the number of EU citizens threatened by the poverty flagellum.

The objectives listed are supported by seven flagship initiatives and the strategy is carried out under the monitoring of the European Semester and has the support of other EU policies and instruments, including the EU budget.

Description of the problem

Many opinions highlight the lack of sustainability in terms of maintaining the nominal convergence criteria also after the entry into EMU, thus making discrimination against EMU countries which are still not members. However, it would be normal after the entry into EMU the nominal criteria to continue to be compulsory for all member states, both to ensure the fairness of the integration process in EMU and the very sustainability of the area and for the better calibration and internal harmonization of economies.

Also, it would be normal that the evaluation period of nominal criteria (especially monetary ones) to be predictable and constant over time, convergence reports of the European Central Bank (ECB) disregarding any rigor in this regard. Thus, the reference periods does not present any methodological continuity, being established arbitrarily between different calendaristic years (i.e. September – August, November – October, April – March, May – April) and not a normal calendaristic year (January – December). This would be desirable especially that the statistical bases, such as Eurostat, provide monthly, quarterly or yearly information, and in some respects the comparability (over time and across indicators) and the relevance of the information can be obtained in a satisfactory manner only on annual data.

Another aspect of poor assessment on the Maastricht nominal convergence criteria is the unpredictable way of calculating the benchmarks or the reference values, ECB reserving the right to change from year to year and to insert or remove from the reference values the “aberrant” or the “exceptional” values (outliers) observed in some countries (i.e. inflation criterion). The appreciations regarding the outliers have of course numerous reasons, often relevant, but their scientific base is not fully cleared, and therefore is not widely accepted by specialists and academics. These methodological obstacles make very hard the assessment and the comparability of the information regarding the nominal convergence criteria (itself, and between each other) and therefore hardly comparable to other methodological guidelines, as is the case of Europe 2020 targets.

Thus, if we consider the relationship between real convergence (including some indicators of sustainable development) and nominal convergence it is difficult to establish a general conclusion. Studies such as those of Bjorksten (2000) points out that following the achievement of nominal criteria it will be also achieved a real convergence, while others point to a possible contradiction between the two types of convergence (Lojschova, 2003), in which the real exchange rate appreciation, through the Balassa-Samuelson effect, may conflict with the fulfilment of inflation and exchange rate criteria imposed by EMU entry.

When referring to the strategy Europe 2020, four years after its launch, in March 2014, the European Commission has analyzed the strategy, concluding among other things that: "The analysis presented in this communication show that the balance of the objectives and flagship initiatives of the Europe 2020 strategy is inhomogeneous. The EU is on track to meet or approaches of the goals on education and climate and energy, but the situation is different in the

case of objectives regarding the employment, research and development or poverty reduction. “(European Commission, 2014b). Moreover, the European Commission surprise as an "uncomfortable" element: the increasing of the trend of growing disparities between the countries with the best results in achieving the objectives of Europe 2020 and the weakest, or between different parts of a country or between regions from different countries, and between urban and rural environment, challenges that aims to address in future adjustments of the strategy.

Note that although the European Union, through its institutions, emphasis increasingly more on aspects of sustainable development of society, yet continues to give priority to the fiscal-budgetary objectives to ensure financial stability, especially in the context of deepening deficits and public debts of member countries. Also, the European banking system has received, in numerous occasions, due to the sovereign debt crisis, substantial support in order to increase the overall supervision and to achieve a profound reform to provide an effective mechanism for restructuring and recovery of banks in distress. Thus, surveillance of economic and budgetary components became the focus of European economic governance in order to surprise earlier and as much as possible the macroeconomic imbalances.

If fiscal and budgetary or monetary imbalances are at the centre of concerns and implicitly of macroeconomic policies of the Union, not the same thing can be said about social policies and sustainable development. My assertion is based on the fact that gradually, over time, nominal targets imposed through the Maastricht criteria for joining the euro area have become increasingly accessible to EU countries, while Europe 2020 targets, which outline EU social and environmental perspective, have become almost unapproachable for many countries. In this context, Romania does not make a discordant note. Thus, according to the most recent ECB Convergence Report (Convergence Report 2014), Romania meets fiscal criteria and long-term interest rate but does not meet the two criteria relating to inflation and exchange rate variation. Instead, from all the eight indicators listed in Europe 2020 Strategy, only two from the field of environmental issues can be considered complying with European targets (indicator on reducing greenhouse gas emissions compared to 1990 and the share of energy renewable in final energy consumption) in Romania. Social indicators, the ones of labour market and the educational ones are lower than the Europe 2020 strategy targets and the national targets.

Methodology and data sources

This paper discusses the implications of nominal convergence criteria at EU level on the indicators proposed by the Europe 2020 Strategy, and in reverse, the implications of Europe 2020 targets on Maastricht nominal convergence criteria. The methodology used is integrative (gathering expertise from previous research literature) and explorative by finding possible logical connections (see Table 1 and Table 2) in order to facilitate the integration of the two types of objectives in a unitary form of EU development strategy. In order to calculate the correlation between the indicators, data sources used were from Eurostat, following their integration into the correlation matrix for the three countries representing the European Union (one of the EMU "core" countries - Germany, another of the EMU peripheral countries - Spain and other outside EMU - Romania). The analyzed period is 2002 – 2013 and because of the limited availability, data series are annual.

Results obtained

The results are described by two matrices through which are correlated from logical point of view the possible effects of variables described by the Maastricht criteria on variables described in Europe 2020 Strategy and *vice-versa*.

Although both types of indicators, set by the Maastricht criteria and some of Europe 2020 indicators (i.e. reducing greenhouse gas emissions compared to 1990 levels, reducing poverty, reducing drop-out rate), aim at decreasing their level, my simulation was in the sense of increasing them. The motivation behind this choice is that, in reality, the indicators subjected to controllability of these criteria (especially of Maastricht ones) rather evolve in an upward manner and therefore their growth poses real challenges in meeting the targets (both to the internal and to the external targets, imposed by other EU strategies and policies). Reducing these indicators can be interpreted inversely, in the sense of a mirror image of the tables shown below.

Table 1

The logical scheme of influence of Maastricht criteria on Europe 2020 targets

Europe 2020 targets / Maastricht criteria (increase)	Employment rate	Early leavers from education and training by sex (%)	Tertiary educational attainment by sex, age group 30 -34 (%)	People at risk of poverty or social exclusion (1000 pers.)	Gross domestic expenditure on Research and Development	Greenhouse gas emissions gaps in report of the base year 1990	Share of renewable energy in gross final energy consumption (%)	Primary energy consumption (Million TOE)
HICP inflation	↑↓ (depending on the connection with Phillips curve)	↑	↓	↑	↓	ct. ↓↑ (depending on elasticity on price)	↓↑ (depending on the motivation of reducing price fluctuation on the energy cost)	↓↑(depending on elasticity on price)
Long term interest rates	↓	↑	↓ (especially the one sustained by credit on many years)	↑	↓	ct. ↓↑ (depending on elasticity on price)	↓↑(depending on the motivation of reducing price fluctuation on the energy cost)	↓↑ (depending on price elasticity)
Exchange rate	↑↓ (depends on elasticity on price) (grows in the field of exporting goods and services)	↑(depends on share of exporting goods in consumption and economy)	↓ (especially the one sustained by loans in foreign currency)	↑ (depends on share of exporting goods in consumption and economy)	↑↓ (depends on share of exporting goods in consumption and economy)	ct. ↓↑ (depending on elasticity on price)	↓↑(depending on the motivation of reducing external price fluctuation on the energy cost)	↓↑(depending on elasticity on price)
Deficit-to-GDP ratio	↑↓ (depending on how much of the deficit is translated in real economy, if creates or not new jobs)	↓↑ (depending on how much of the deficit is translated in real economy, if it is “invested” in education)	↑↓ (depending on how much of the deficit is translated in real economy, if it is “invested” in education)	↓↑ (depending on how much of the deficit is translated in real economy, if it is “invested” in social protection)	↑↓ (depending on how much of the deficit is translated in real economy; if it is “invested” in research)	ct. ↓	↓↑(depending on the motivation of reducing price fluctuation on the energy cost)	↓
General government debt in percent of GDP	↓↑ (depending on how much debt is translated in real economy, if creates or not new jobs)	↓↑ (depending on how much debt is translated in real economy, if it is “invested” in education)	↑↓ (depending on how much debt is translated in real economy, if it is “invested” in education)	↓↑ (depending on how much debt is translated in real economy, if it is “invested” in social protection)	↑↓ (depending on how much debt is translated in real economy; if it is “invested” in research)	ct. ↓	↓↑(depending on the motivation of reducing price fluctuation on the energy cost)	↓

Source: author’s conception; ct. means constant.

If we look at the first table, the one of the implications of the Maastricht criteria on the indicators proposed by the Europe 2020 strategy, the result can be interpreted as mixed or uncertain, in the

sense that it is difficult to specify a possible general positive or negative effect on this strategy targets. This uncertainty is mainly due to the manner in which public policies (fiscal and budgetary policy, monetary policy, social policy, environmental policy, etc.) react to the increase or decrease of an indicator whose controllability it is wanted. The transmission level of that measure over the targeted indicator, but also the spread of its effects throughout the entire economy is fundamental for assessing the positive or negative effect on Europe 2020 targets.

In general, higher fiscal and budgetary deficits cannot be auspicious for the labour market indicators and those regarding social policy. This is attributable to the increase of taxes which generally pushes employment and investments down (implicitly the ones in research and development (R&D) and investment in renewable resources). In this context, poverty and dropout rate may increase. However, if the increase of public debt and fiscal deficits is reflected in the ensuring of a satisfactory level of employment or is invested in R&D or in finding alternative and sustainable sources of energy (as from renewable resources), then the overall effect on Europe 2020 indicators cannot be seen as negative, especially in the medium and long term.

Unfortunately, the crisis has shown that the increases in fiscal-budgetary deficits and public debt (but not only, also of the private debt!) putted additional negative pressure on the evolution of labour market and social policy indicators.

Table 2

The logical scheme of influence of Europe 2020 targets on Maastricht criteria

Maastricht criteria / Europe 2020 targets (increase)	HICP inflation	Long term interest rates	Exchange rate	Deficit-to-GDP ratio	General government debt in percent of GDP
Employment rate	↑↓ (depending on the connection with Phillips curve)	↓	↓	↓	↓↑ (depending on public option for credit)
Early leavers from education and training by sex (%)	↑↓ (may conduce to the reduction of employment rate; can decrease in the context of reduced pressure of employment cost on prices)	↓↑ (may cause an increased risk of credit default, which is usually included in price of the credit)	↑	↑	↑(depending on public option for sustaining disadvantaged people through public programs)
Tertiary educational attainment by sex, age group 30 -34 (%)	↑↓ (depending on the connection with Phillips curve)	↓	↓	↓	↓↑ (depending on public option for credit)
People at risk of poverty or social exclusion (1000 pers.)	↓↑ (depending on the connection with Phillips curve)	↓↑ (may cause an increased risk of credit default, which is usually included in price of the credit)	↑	↑	↑(depending on public option for sustaining disadvantaged people through public programs)
Gross domestic expenditure on Research and Development	↓↑ (depending on the connection with Phillips curve)	↓	↓	↑↓ (on a short term it may increase the deficit, but on the long term has a certain positive effect)	↑↓ (on a short term it may increase the debt, but on the long term it contributes to the reduction of debt)
Greenhouse gas emissions gaps in report of the base year 1990	ct. ↑ (on short term it may have no implication, but on long term it can impose a growth in environment costs which can be transposed in general level of prices)	↑	↑	↓↑ (on a short term it may decrease the deficit through environmental taxes, but on the long term has a certain negative effect)	↑
Share of renewable energy in gross final energy consumption (%)	↓ct. (in time, if a big part of energy will be obtained from renewable sources, the impact on prices will be small, almost constant)	↓	↓	↓	↓
Primary energy consumption (Million TOE)	↓↑	↑	↑	↓↑ (on a short term it may decrease the deficit through consumption taxes, but on the long term has a certain negative effect)	↑

Source: author's conception; ct. means constant.

In the second table, the positive effects of the Europe 2020 indicators on the Maastricht convergence criteria seem more obvious. This is due precisely to their sustainability, being important objectives for the development of an economy both on short-term and on long-term, of several generations in a row. When investments aim at increasing employment, and especially in unpolluting fields or in energy efficient areas or at least beneficial to the society (i.e. education, health, culture, economy, etc.), the possible negative effects on inflation, on public debt and on budgetary deficit seem insignificant for long-term gain for the economy and society as a whole.

In the context of logical correlations from above, it is hard to say which of the two sets of factors is more important, or more precisely, which should be placed in the foreground and which in the background. The crisis has shown that financial sustainability objectives (fiscal - budgetary and monetary) had prevail, so policy makers had "treated" them first, but they being the very source of imbalances it should have been putted behind the sustainable development objectives, including those set out in Europe 2020. Thus, the Europe 2020 targets should have been putted in front and tracked with the same determination in order to be achieved and maintained. Although they may initially be seen as much more expensive, yet provide on a medium-term or on a long time horizon the resolution of many budgetary, fiscal and even money problems (i.e. the increase of employment, investment in research and development and education can reverse the adverse social trends, including demographic, such as population aging, and reduce current and future deficits from public budgets).

If we look at the correlation matrix for the three countries (see Annex 1), two of the EMU (Germany and Spain) and one from outside EMU (Romania), we observe the following:

- For Germany

- inflation appears in a significant positive correlation with the evolution of public deficit (0.721727) and with employment rate (0.247579), - the long term interest rate seems to have a significant inverse correlation with public debt (-0.92181), with the deficit (-0.30293), with employment rate (-0.76148), with research and development (-0.87189), with renewable energy (-0.79572) and with tertiary education (-0.90796), having also a strong positive connection with emissions of greenhouse gases (0.749743), with primary energy consumption (0.695384) and with the school dropout rate (0.586506), – the correlation of public deficit is strong and positive in relation to the employment rate (0.619882), with research and development (0.37911), with the share of renewable energy (0.400441), with tertiary education (0.404947), but also with poverty (0.519192), – public debt shows a strong and positive correlation with employment rate (0.828461), with research and development (0.893932), with renewable energy (0.844477) and with tertiary education level (0.92972), while with the dropout rate, with greenhouse gas emissions and with primary energy consumption has a strong inverse relation, - regarding employment rate, it has a strong positive correlation with research and development (0.91358), with renewable energy (0.97144) and with tertiary (0.911615) - the R&D investment has a strong and positive correlation with share of renewable energy and tertiary education (0.928004), - the share of renewable energy has a strong positive correlation with tertiary education (0.903497);

- For Spain

- inflation has a strong and positive correlation in relation to public deficit (0.620588), with the employment rate (0.346207), with greenhouse gas emissions (0.511142) and with primary energy (0.416714) - long-term interest rate is positively correlated with public debt (0.802019) and with renewable energy (0.699275) – the public deficit is significantly positively correlated with the employment rate (0.69441), with greenhouse gas emissions (0.950459), with primary energy consumption (0.730417) and with dropout rate from education (0.667517), - debt positively correlated strongly with renewable energy (0.825698) and poverty (0.946083) - unexpected is that the employment rate is positively correlated with greenhouse gas emissions (0.840729), with primary energy consumption (0.936665) and with dropout rate (0.666668), - while research and development is positively correlated with tertiary education, with poverty and renewable energy, - tertiary education was positively correlated strongly with poverty (0.649577);

- For Romania

- inflation is positively correlated with public deficit (0.465543), with greenhouse gas emissions (0.482954), with primary energy consumption (0.405767) and with dropout rate (0.857621) - the long-term interest rate is negatively correlated with almost all indicators but only with public deficit

in a significant manner (-0.80918) – public deficit is significantly positively correlated with greenhouse gas emissions (0.721923), with primary energy consumption (0.612218) and with dropout rate (0.657827) – public debt is negatively correlated strongly with employment rate (-0.7017), with greenhouse gas emissions (-0.82804) with primary energy consumption (-0.82611) and with poverty (-0.89315) – the employment rate is positively and significantly correlated with poverty (0.881674), - investments in research and development are positively and significantly correlated with tertiary education (0.68069) and poverty (0.514143), - tertiary education is significantly and negatively correlated with poverty (-0.87297).

Following the analysis of correlation matrices we cannot draw a clear interpretation supported by the analysis based on logical correlation, only Germany conforming to a greater extent to the logical analysis.

Conclusions

According to the latest developments, the gaps and disparities seem to emphasize at the European Union level between countries and between regions of the member states regarding social, educational and the labour market aspects, while fiscal and monetary matters are experiencing periods of improvement.

Note that fiscal and budgetary targets and monetary ones, regarding the ensuring financial and monetary stability, at the EU level and at the member states (implicit Romania) level, can be easely achieved, on a medium-term or shot-term, while social and educational goals are more difficult to be tracked and reached, requiring a long time (even 20 - 30 years) of implementation of the appropriate policies specific to the realities of each country, with results less visible and clear. Thus, the pace of implementing the necessary reforms, in order to correct the economic, social and educational realities, needs to be more alert in order to retrieve the highly undynamic materialization of the expected and desired results. At the same time, the pace of fiscal-budgetary adjustments can be slow down in order to couple and to synchronize the real economy with the nominal one (a convergence similar to the Beta convergence, which means that the growth pace of poorer economies should be more alert relative to the rich ones, closing the gap in this case taking place between nominal convergence and sustainable development issues).

Adjustments in the budgetary and taxation field have implications on long-term in the sense of creating additional pressure within the social and economic field through the welfare loss both at households and at firms level. Apparently, although the state always seems to be the winner of a more restrictive fiscal and budgetary policies, with high taxes and poor social services, insignificant for the welfare of its citizens, in reality, both on short-term and on the medium and long term it will be the biggest loser. On the short term, rising taxes and the lack of adequate social protection policies lead to poor revenue collection and to the increase of tax evasion, and on long-term inadequate taxation and a poor salary levels translates into loss of welfare for the people, into poverty, into the loss of health of the nation and hence into the burden on the health system, into the unsatisfactory level of education, into emigration, into depopulation and finally into a increasingly imbalanced labour market, with a decrease of human resources and with poor qualifications.

According to the logical analysis, of the implications of the Maastricht criteria on the indicators proposed by the Europe 2020 Strategy, and *vice versa*, the result can be interpreted as mixed or uncertain one in the sense that it is difficult to specify a possible global positive or negative effect on the evolution of the indicators. This uncertainty is mainly due to the manner in which public policies (fiscal and budgetary policy, monetary policy, social policy, environmental policy, etc.) react to the increase or decrease of an indicator whose controllability it is desired, to the level of functioning of transmission mechanism of public decisions on the followed indicator, but also to the indicators of sustainable development and to the economy as a whole.

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Annex 1
Table 3

Correlation Matrix for Germany

	HICPinfl_rate_DE	*LTIR_DE*	*GGD/S_DE*	*GGGD_DE*	*ER_DE*	*GERD_DE*	*GGEby1990_DE*	*SREGFEC_DE*	*PEC_DE*	*ELET_DE*	*TEA_DE*	*PRPSE_DE*
HICPinfl_rate_DE	1											
LTIR_DE	-0,06985	1										
GGD/S_DE	0,721727	-0,30293	1									
GGGD_DE	-0,02725	-0,92181	0,181371	1								
ER_DE	0,247579	-0,76148	0,619882	0,828461	1							
GERD_DE	0,022518	-0,87189	0,37911	0,893932	0,91358	1						
GGEby1990_DE	0,068395	0,749743	-0,37308	-0,84539	-0,89908	-0,87595	1					
SREGFEC_DE	-0,02987	-0,79572	0,400441	0,844477	0,97144	0,928004	-0,86148	1				
PEC_DE	0,050866	0,695384	-0,36478	-0,71581	-0,79444	-0,85657	0,887068	-0,8113	1			
ELET_DE	0,056177	0,586506	-0,29214	-0,59974	-0,71546	-0,82041	0,690824	-0,69712	0,808891	1		
TEA_DE	0,112794	-0,90796	0,404947	0,92972	0,911615	0,957158	-0,88913	0,903497	-0,83758	-0,80077	1	
PRPSE_DE	0,098274	0,410483	0,519192	-0,25452	0,283501	-0,03359	-0,03027	0,156809	0,015556	-0,14399	-0,07926	1

Table 4

Correlation Matrix for Spain

	HICPinfl_rate_ES	*LTIR_ES*	*GGD/S_ES*	*GGGD_ES*	*ER_ES*	*GERD_ES*	*GGEby1990_ES*	*SREGFEC_ES*	*PEC_ES*	*ELET_ES*	*TEA_ES*	*PRPSE_ES*
HICPinfl_rate_ES	1											
LTIR_ES	0,028816	1										
GGD/S_ES	0,620588	-0,53988	1									
GGGD_ES	-0,31452	0,802019	-0,78012	1								
ER_ES	0,346207	-0,69907	0,69441	-0,91398	1							
GERD_ES	-0,48212	0,215254	-0,73705	0,332973	-0,07386	1						
GGEby1990_ES	0,511142	-0,66771	0,950459	-0,87828	0,840729	-0,57773	1					
SREGFEC_ES	-0,53055	0,699275	-0,94571	0,825698	-0,79238	0,840077	-0,9628	1				
PEC_ES	0,416714	-0,64709	0,730417	-0,80502	0,936665	-0,15586	0,877657	-0,90966	1			
ELET_ES	0,167896	-0,77041	0,667517	-0,89617	0,666668	-0,49514	0,748719	-0,77497	0,557838	1		
TEA_ES	-0,29515	0,158817	-0,56579	0,29162	0,047873	0,916748	-0,38873	0,763498	0,071276	-0,5452	1	
PRPSE_ES	-0,22099	0,84759	-0,85276	0,946083	-0,88938	0,606339	-0,92791	0,902031	-0,89555	-0,9174	0,649577	1

Table 5

Correlation Matrix for Romania

	HICPinfl_rate_RO	*LTIR_RO*	*GGD/S_RO*	*GGGD_RO*	*ER_RO*	*GERD_RO*	*GGEby1990_RO*	*SREGFEC_RO*	*PEC_RO*	*ELET_RO*	*TEA_RO*	*PRPSE_RO*
HICPinfl_rate_RO	1											
LTIR_RO	0,248834	1										
GGD/S_RO	0,465543	-0,80918	1									
GGGD_RO	-0,12809	-0,15937	-0,30273	1								
ER_RO	-0,24745	-0,18461	0,221293	-0,7017	1							
GERD_RO	-0,68444	-0,1023	-0,54886	-0,02357	0,359783	1						
GGEby1990_RO	0,482954	-0,20088	0,721923	-0,82804	0,548524	-0,2736	1					
SREGFEC_RO	-0,64849	0,258026	-0,78342	0,764146	-0,44217	0,401016	-0,93136	1				
PEC_RO	0,405767	-0,23662	0,612218	-0,82611	0,587125	-0,14125	0,960735	-0,86298	1			
ELET_RO	0,857621	-0,46898	0,657827	-0,02472	-0,33539	-0,89477	0,433638	-0,54989	0,350608	1		
TEA_RO	-0,76527	-0,15769	-0,64091	0,646436	-0,18476	0,68069	-0,83891	0,889741	-0,76443	-0,76117	1	
PRPSE_RO	0,115824	0,019428	0,334502	-0,89315	0,881674	0,514143	0,875465	-0,79075	0,811453	-0,39535	-0,87297	1

Source: Eurostat database, author's calculation, notations: HICPinfl_rate - Annual average rate of change of inflation (%), LTIR - EMU convergence criterion series - annual data for long term interest rate, GGD/S - General government deficit/surplus % of GDP, GGGD - General government gross debt % of GDP, ER - Employment rate by sex, age group 20-64 (%), GERD - Gross domestic expenditure on R&D (GERD) % of GDP, GGEby1990 - Greenhouse gas emissions, base year 1990, Index (1990 = 100), SREGFEC - Share of renewable energy in gross final energy consumption (%), PEC - Primary energy consumption (Million TOE (tonnes of oil equivalent)), ELET - Early leavers from education and training by sex (% of the population aged 18-24 with at most lower secondary education and not in further education or training), TEA - Tertiary educational attainment by sex, age group 30-34, PRPSE - People at risk of poverty or social exclusion.

FREE BANKING – POSSIBLE SOLUTION TO THE RECENT CRISIS?

Adina APĂTĂCHIOAE [43]

Abstract

The free banking system, as a possible solution to alleviate the difficulties made by the recent financial crisis and to avoid such situations in the future, require the absence of central monetary authority and allow the establishment of private banks in conditions of freedom. The purpose of this article is to highlight the opinions pros and cons of adopting a free banking system and the ways in which it could provide a more stable financial system. In literature can be found proposals in the application of a free banking system based on fractional reserve or reserve 100%. Analyzing these issues, we conclude that in the economic systems will be supporters of both solutions, but the application of only one system which can ensure the general welfare must be experimented.

Keywords: free banking, fractional reserve, 100% reserve, reform.

JEL classification: F40, F41, G21.

Introduction

Unlike the central bank which is an institution endowed with power and able to take series of macroeconomic measures, free banking defines a more decentralized market which is found in the absence of any central monetary authority. Despite this undeniable fact, the notion of free-banking refers to monetary market issues and the issuance of currency by private banks. Free banking does not amount in full with the idea of liberalizing the banking regulations and, therefore, rejected the idea that free banking is one of the causes of recent international crisis. In the crisis context, confusion has been created between the lack of regulation of the system and its degree of freedom, many believing that the crisis is due to excessive liberalism in the banking system (Milne, Wood, 2008, p. 517). The idea is based on the fractional reserve which can be interpreted as a too much freedom of the commercial banks in the lending provided by the central bank.

In order to remedy the situation caused by the crisis, there have been discussions on implementation of a reform based on **free banking** (Păun, 2010, p. 67). The proposed reform has gathered both supporters and opponents. Furthermore, proposals are discussions in adopting a system based on the fractional reserve or reserves 100% in a free banking system that constitutes solution to the recent crisis and can ensure monetary, financial and economic stability. The main criticism in application of a fractional reserve system consists in the inflationary effects, but supporters of 100% reserves (Soto and representatives of the Austrian School) believe that the necessary elements that the financial and monetary system requires in order to become more stable are: complete freedom in the choice of currency; free-banking system and eliminating the central bank and subjecting all agents involved in the system of free banking to the rules and traditional principles of law, the principle that no one should enjoy the privilege to lend something entrusted to deposit sight. In short, it is necessary that the banking system to maintain at any moment 100% reserve. Partisans of this concept allowed the freedom of establishment as many private banks in terms of complete freedom, both in terms of social order and legal form.

The article is structured as follows: part two presents literature about the concept of free banking and discussions conducted on this concept in the context of the crisis and the third part present the contradictory opinions in applying a free banking system with fractional-reserve or 100% reserve. The article ends with conclusions.

Literature Review

The concise definition of free banking is that once the requirements imposed by state law are satisfied, any person or group of people is allowed to open a bank. Banks, after their creation by submitting a minimum capital can create money that is characterized by free movement, but with the obligation to hold a security deposit to the monetary authorities. Free banking refers directly to the banking laws so that the application of such a system is characterized by a lack of regulations and the fact that banks and other institutions, be they non-financial, should be guided by the same law (Dwyer Jr., 1996, p.78). Free banking implies the absence of a banking authority so that

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reserve rates are not set by law but are required in each bank to ensure a degree of prudence and safety (Sechrest, 2008, p.13).

The recent international financial crisis has manifested itself in the entire economy, but financial institutions play an essential role in the production, transmission and resolution thereof. Banks as financial intermediaries that make the transfer of funds from agents with excess to those with deficit have contributed to the expansion of economic instability.

The causes of recent international crisis were many, highlighting the failures of banking regulation and supervision plan. In the literature it is argued that one legal system consistent and robust and an appropriate supervision represent the essential elements to a stable banking system. According to Rochet (2008, p. 320), a banking system is more functional if possess a considerable volume of cash or the investments retains in a liquid form resources that to ensure reimbursement of depositors requests. This phenomenon, massive withdrawal of deposits at a bank caused its bankruptcy and led to the recital of the fragility of the banking system. To avoid the propagation this phenomenon have been designed a series of mechanisms such as the creation of an institution to act as lender of last resort, security system, public investment through capital injections or supervision rules (Rochet, 2008, p. 320).

One of the scenarios that caused the crisis is blamed on **liberalization measures in the banking system**s which were not accepted as an appropriate means of surveillance. The initial image is of an oligopolistic banking system, protected from competition of foreign banks and non-bank financial intermediaries. At the beginning of the liberalization process newcomers subjected to lax regulations will provide services at discounted prices because of reduced capital costs. The balance sheets of the existing banks in the market will deteriorate, banks decapitalisation being affected by asset immobilization with low interest, loss of major customers and the emergence of other financing costs (Dornbusch and Giavazzi, 2001, p.445).

In the process of discovering the causes of the recent financial crisis and of finding solutions for remedying arose one of the most controversial ideas supported by Austrian School economists: the renunciation of the monopoly of central banks (monopoly over issuing currency) and invoking competition between the coins of banks (public and private) and depriving the government of issuing money over the needs of the economy. It recounted the fact that in the case of a fractional reserve banking system is violated the traditional rule according to which in a deposit agreement the traditional obligation of custody requires that all time be kept a reserve 100% of the among of fungible money receive into deposit.

Lately, a new trend has developed in free-banking, borrowing and banking school elements. The trend is called **Neobanking School or Fractional-Reserve Free Banking School**. Among the representatives of this trend include: Lawrence White (1992), George Selgin (1993), Kevin Dowd (2003), David Glasner (2005). They believe that the spontaneous mechanism of clearing houses can hold simultaneous and concerted expansion of a majority of banks. Selgin (1987, p. 439-57) argues that a free banking system with fractional reserve could rectify the fiat money creation at the public demand for such instruments in the most efficient way compared with other systems. He believes that high demand of money may cause a reduction in demand for the replacement of fiat money from bank reserves resources. This will cause an increase in the reserves, and banks in search of higher profits will grow credit supply and thus the issue of banknotes (fiat money), resulting in an adaptation of the cash changeover to public demand. This latter objective can be achieved in the reverse situation when the reduction of the demand for its currency will lead to the replacement of its reserves at the bank, the bank will notice that they can go into default and credit supply will decrease and thus the currency.

Also, Bagus and Howden (2011, p.11) are proponents of the idea that you can maintain a balance in the monetary system by practicing a free banking system with fractional reserve and those reserves are a way of protection against credit expansion generated by this system. They were shown three ways that the practice a free banking system with fractional reserve can lead to credit expansion in the absence of prior increases in the real economy. This demonstrates that the fractional reserve system, even in a free system is ultimately causing instability and requires a call to the central bank to achieve stability. Janson (1998, p.20) argues that banking activity based on fractional reserve banking is not fraudulent and is against those free banks that choose to work under the obligation of constituting a 100% reserve. She is skeptical of predictions made on this

system with 100% reserves and cannot explain the way that it fractional reserve system would not achieve the same results without violating the rights.

One of those coming against the fractional reserve system is Jesus Huerta de Soto (1998, p.679) who states that credit expansion may lead to banking crisis and recession which will inevitably lead the public to seek government intervention to solve the problems. Similarly, the bankers will be forced to accept the existence of a lender of last resort to reduce their risk of insolvency, provided that call for reunification liquidity. In the author's view, the practice of free banking with fractional reserves strengthens the need for a central bank and believes that a correct solution to a free society privileges is a free banking activity, but subject to the law, which means 100% reserve (Soto, 2010, p.657).

Free banking – fractional reserve or 100% reserve?

The recent economic and financial crisis has reopened the debate about the state intervention in economy and the free market. Discussions on this subject are designed to clarify the real causes of the crisis and the devastating effects they propagate the general welfare. In the plan of these discussions are concerned regulatory elements of banking and financial systems, of introduction of new controls and supervising in the financial markets, the use of new financial instruments and of the role of bank and non-bank operators in these markets. Once understood why the system is not functioning properly and how possible interventions can fix this issue would avoid such situations in the future. The starting point for re-discussion of reforms implemented in the financial and banking systems should be "money" (Marimon, Nicolini, Teles, 2012, p. 11).

Elements considered to be aggravating global crisis include: capital account liberalization, speculative investment flows, transactions in currency markets, monetary policy expansion that changes the price level and structure, fractional reserve and deposits on term with the possibility of retirement before maturity. In the crisis were created confusions between the lack of regulation of the system and its degree of freedom, many authors believing that the crisis is due to excessive liberalism in the banking system. The idea is based on the fractional reserve and which can be interpreted as a greater freedom of the commercial banks to lending.

Furthermore, it came to discussions on establishing a reform based on **free banking** which gathered both supporters and opponents. Glasner (2005, p.344) specify that the goals of such reforms based on free banking can create a dilemma. On the one hand, the free market can generate greater efficiency and lower transaction costs, but on the other hand, a pure free money market cannot protect all market participants to cost of price-uncertainty level. A free money market would minimize the cost of holding money, but will not necessarily reduce the uncertainty and cost of the overall price. These costs will be reflected in employees, borrowers, to all those involved in future activities involving the exchange of value in nominal terms.

Pascal (1998, p. 61) affirms that, in a perfectly free system, all must be willing to provide all existing money and attract customers for their services. In turn, customers should be free to choose money and payment system. A possible way by which creators of substitute money can make people to pay the cost of holding gold is practicing only the fractional reserve system. This gain will be proportional to the length of time that people have the money and the time value of money they receive fractional interest detainees, namely those who have loans and not gold as their counterpart in the balance. In a free banking system, various creators of currency must coexist in the market. The same author argues that the definition of free banking = free competition between different creators of currency is not compatible with the idea of holding the banks of a 100% reserve system. In his opinion there are two ways that you can select one or a combination of systems of reserves (reserves 100% and fractional reserve): once, through regulations imposed by the state, in which case it will apply 100% reserves and thus have eliminated the idea of free banking; on the other hand suggests that the monetary system is chosen by market, namely the creators and users of coins.

The preference for one system or another cannot be given. Therefore, there may be people who prefer 100% reserve system just as there may be people who prefer fractional reserve banking, which should be experimented. Just as specify Hülsmann (1996, p. 3-53) and Pascal (1998, p. 61) the existence of both systems at the same time can define a perfect free banking system. It is worth noting that there is a contradiction in his Hülsmann view namely that support 100% reserve system apparently does not represents the mandatory existence of another system if the fractional reserve

would be banned by the state. Although the superiority of reserve of 100% cannot be established, and as well as Pascal, we can use the history items related to this. The first coins were covered with reserves of 100%, but the fractional reserve system has progressively evolved there is a time in which the two systems become competitive.

Fractional system was selected not as a result of the follow state regulations prohibiting reserves 100%, but because it made possible a more convenient intersection need of creators and holders of currency. It is also true that during the transition from one system to another will be a major currencies creative with effects in inflation, excessive credit, more investment, and so on, these effects are accompanied by costs. Under the free banking system with fractional reserve individual decisions will prevail, which will not favor limiting the volume of coins substituents. This causes Hülsmann to say that fractional reserve will not ensure the optimal level of quantity of coins and appropriate quality of them.

Characteristics of free banking do not allow us to accept the idea that fractional reserve is ineffective and is creating systemic risk through the effects of contagion because, under such a system, banks will interact with other institutions that will help them to avoid the systemic risk.

The arguments were made in favor of fractional-reserve banking and were generalized due to members of **Banking School**, forming a group of theorists around this idea. Among its members are also the following: Parnell, Wilson, MacLeod, Tooke, Fullarton, etc.. They militate around three fundamental theses of banking School namely: a) fractional reserve banking who is theoretically justified and legal is very beneficial for economic development, b) the ideal monetary system that facilitates the expansion of the money supply as required population growth and economic activity; c) the banking system with fractional reserve allows, through the expansion of credit and the issuance of paper money not covered by commodity money, the increasing of money supply according to the needs of trade, without inflationary effects or distortions in the production structure.

Banking School doctrines were contradicted by the followers of the Monetary School who pointed out three of their most serious mistakes. On one side, accused them of misunderstanding the fact that bank deposits have a role similar to banknotes issued without precious metal coating and they treated in a superficial way the manner in which the credit expansion can affect different stages of capital goods in the production structure of a country. Also, were accused of granting to an official central bank the monopoly privilege of banknote issue in order to end the inflationary excesses, without realizing that such an institution will complete by accelerating credit expansion in the form of deposits and banknotes in circulation. As supporters of the Monetary School, Modeste, Cernuschi, Hubner and Michaelis, followed by Ludwig von Mises understood that recommendations of Banking School in favor of central bank were erroneous and supported the establishment of a free banking with 100% reserve.

Thus, was developed a complex debate between supporters of free banking and supporters of the central bank. The latter argue that a free banking system would be subjected to isolated banking crisis who might affect the holders of notes and deposits, and that in such circumstances it is necessary to have an official central bank invested with power to intervene in order to protect the holders of notes and deposits in a crisis. Moreover, they argue that a free banking system controlled by the central bank can causing less economic crisis than a free-banking system, and in the circumstances of recent international crisis, it was argued that such a bank is the most conducive to creating the necessary liquidity. It was concluded that the existence of fractional reserve banking system inevitably lead to the establishment of a central bank acting as lender of last resort.

Historical studies support the idea that a free banking system would immunize the economies front of the cycles of boom economies and depression due to the mechanism of "monetary equilibrium". Soto (2010, p.350) believes that the studies pursued in this regard instead to investigate whether free-banking system has avoided the credit expansion, artificial boom and economic recession were limited to study whether banking panics and crises were more or less frequent and severe than a central bank system. Even though historical studies indicate that free banking systems have created less panics and banking crisis than a systems with central bank, this not mean that a free banking system is completely devoid of such events. In support of the assertion of Soto (2010, p.676) comes Selgin (1993, p. 347), which relies on three acute banking crises that ravaged the free-banking systems: Scotland - 1797 Canada - 1837 Australia - 1893.

According to the above affirmations, we can distinguish two radically different systems that can be applied in banking activity. On a side, a free banking system subject to traditional principles of law (compliance rate of 100% reserve), in which the operations with fractional reserve are illegal and contrary to social order and, on the other hand, a system that allows the application of the fractional reserve and which inevitably lead to the establishment of a central bank as a central element of the financial system and as lender of last resort. The first economist who supports the establishment of a banking system with a 100% reserve for deposits is Ludwig von Mises, in the first edition of his book on the theory of money and of fiduciary media, published in 1912, which joins economists such as Cernuschi, Modeste, Geyer,Tellkampf, Michaelis, Hayek, Friedman, Tobin and Allais.

Soto and the representatives of the Austrian School are among the supporters of such a system and, in the context of international economic and financial crisis, they propose a banking reform that is based on free banking system. They propose, on the one hand, subjecting financial market institutions to traditional principles of law and, on the other hand, the elimination of state organisms devoted so far to control and steer the financial system. They believe that the necessary elements that financial and monetary system become more stable are: complete freedom in the choice of currency, a free-banking system, eliminate the central bank and subjecting all agents involved in the system to rules and traditional principles of law, the principle that no one should enjoy the privilege to lend something entrusted like deposits. In short, it is necessary that in any moment in the banking system to keep 100% reserve. Partisans of this concept allowed the freedom of establishment as many private banks in terms of complete freedom, both in terms of social order and legal form.

This reform would allow the establishment of specific banking institutions of a market economy, facilitating better invested capital accumulation and economic development so as to avoid imbalances and crises that produce the current system which is subject to interventions and intense centralization (Reinhart, Rogoff, 2008). One of the advantages achieved by the application of this system would **be avoid crises** resulting from lack of liquidity of banks, by simply applying the legal principles of bankruptcy. This type of "banking crisis" has nothing in common with qualitative or quantitative traditional crisis which continued to affect the banks which began to act the operations with fractional reserve. Another advantage of applying this system would avoid **cyclical economic crises;** since there is not an artificial credit expansion without previously have been a parallel increase in voluntary saving and real society. Defenders of the system argue that it is the best private property **rights and fueling economic growth stable and sustained minimize transaction costs, especially those related to union negotiations.**

A monetary system based on the gold standard and 100% reserve and assuming annual increase productivity by 3%, this pattern of growth would lead to a gradual and steady decline in prices of consumer goods and services. This decrease would provide economic development and ensure the benefits of growth, increasing constantly purchasing power of monetary units that citizens possess. Another advantage of this system would be that this **will end financial speculation and its harmful effects, will provide greater compatibility with the democratic system and supports harmonious and peaceful cooperation among nations.** The same authors consider that the main error of the majority theorists which defense the free banking system is the assumption that the bank reserve requirement of 100% reserve would be unacceptable administrative interference in individual liberty and not see it as an application of traditional principle property rights (Soto, 1998).

Economists such as Irving Fisher, Milton Friedman, James Tobin, John Kay, Martin Wolf and Sir Mervyn King believe that 100% reserve system can be a possible solution to the present international economic crisis and identify its benefits, including: greater control over the sources of fluctuations in the cycles of business, eliminating bank failures, reducing public debt and monetary creation, monitoring risks and costs and reducing inflation. Similarly, in the Submission to the Independent Commission on Banking was listed benefits of implementing such a system, including achieving economic stability and reduce systemic risks posed by the fiscal position of the government, banking competition that would eliminate restrictions on the banking activity, security of depositors, the possibility to establish interest rates in the market, etc. (Dyson, Greenham, Collins, Werner, 2011, p. 347). White (1992, p.517) affirms that the fractional reserve system it is not unstable if the banking system is deprived of fulfillment of banking restrictions, and without privileges. He considers that an advantage of the application of this system is to gain the coins of banks granting the loan from the funds held. The most vehement critics in implementation of the

system to the fractional reserve relate to the inflationary effects caused; the supporters of this idea are Selgin, Rothbard or Tenebrarum.

Conclusions

Free banking defines a more decentralized market which is found in the absence of any central monetary authority. In order to remedy the situation caused by the crisis, it was discussions on implementation of a reform based on **free banking**, around which gathered both supporters and opponents. Furthermore, proposals are discussions in adopting a system based on the fractional reserve or reserves 100% in a free banking system that constitutes solution to the recent crisis and can ensure monetary stability, financial and economic.

Selgin (1987, p. 83) argues that a free banking system with fractional reserve could rectify the fiat money creation at public demand for such instruments in a more efficient way compared to other systems. Janson (1998, p.45) argues that banking activity based on fractional reserve banking it is not fraudulent and is against to those free banks that choose to work under the obligation to constitute a 100% reserve. She is skeptical of predictions made on this system with 100% reserves and cannot explain the way that it fractional reserve system would not achieve the same results without violating the rights. One of those coming against the fractional reserve system is Jesus Huerta de Soto (1998, p.78), which states that the practice of free banking with fractional reserves strengthens the need for a central bank and believes that a correct solution to a free society privileges is a free banking activity, but subject to the law, which means 100% reserve. The main criticism in the application of a fractional reserve system is the inflationary effects, but supporters of 100% reserves consider that the necessary elements that financial and monetary system to become more stable are: complete freedom in the choice of currency; free-banking system and eliminate the central bank and subjecting all agents involved in the system of free banking to the rules and traditional principles of law, the principle that no one should enjoy the privilege to lend something entrusted to deposit sight. In short, it is necessary that at any moment in the banking system to keep 100% reserve. Partisans of this concept allowed the freedom of establishment as many private banks in terms of complete freedom, both in terms of social order and legal form

In literature, we found that the goals of such reforms based on free banking can create a dilemma. On the one hand, the free market can generate greater efficiency and lower transaction costs, but on the other hand, a pure free money market cannot protect all market participants to cost of price-uncertainty level. A free money market would minimize the cost of holding money, but will not necessarily reduce the uncertainty and cost of the overall price. These costs will be reflected in employees, borrowers, to all those involved in future activities involving the exchange of value in nominal terms.

A preference for one system or another cannot be established. Therefore, there may be people who prefer 100% reserve system just as there may be people who prefer fractional reserve banking, which should be experimented. Just as specify Hülsmann (1996, p.3) and Pascal (1998, p.61) the existence of both systems at the same time can define a perfect free banking system.

The article is a theoretical work on what is means free banking and if the appeal to one free banking system could be a solution in resolving the recent financial crisis. The literature determine us to affirm that the appeal to a free banking system based on fractional reserve or 100% reserve must be experimented and that there will always be supporters of both types of solutions. The article determine reactions for new directions for research such as studying the effects that the application of such a system can have on the economy, empirical studies on the subject or comparing the effectiveness of free banking solutions with other solutions utilized in order to remedy the situation caused by the crisis.

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THE IMPACT OF MACROECONOMIC FACTORS ON NON-PERFORMING LOANS IN THE REPUBLIC OF MOLDOVA

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Abstract

The purpose of this research is to estimate the impact of several macroeconomic variables on *non-performing loans (*NPLs) in the banking sector of the Republic of Moldova recently affected by global crisis. Using econometric multivariate linear regression analysis, we conclude that banking NPLs are affected nor only by distinctive features of the banking sector and the policy choices of each bank but also by macroeconomic environment: NPLs increase when GDP, exports, remittances decrease and when unemployment increases, however, our assumption about the relation between NPLs and private indebtedness has not been validated. We observed a substantial increase in the credit risk during the recent financial crisis period.

Keywords: macroeconomic factors, banking system, nonperforming loans.

JEL Classification: F41, G21, C51

Introduction

NPLs ratio is one of the most relevant indicators of the financial soundness of the banking system (IMF, 2006, p. 85), which identifies problems with asset quality in the loan portfolio. The more deteriorated is the quality of the credit portfolio of the bank the more is that indicator. Thus lending activity implies credit risk which should be properly managed by banks. Country practice varies in defining nonperforming loans. Some use quantitative criteria such as the number of days overdue, others rely on qualitative norms such as the clients' financial status, management judgment about future payments. The approach stated in the regulations of the Capital Accord of Basel II states that non-performing loans as loans that are past due and unpaid for more than 90 days (usually equally to 3 dates of payment).

Although NPLs are a phenomenon that is permanently present in the balance sheets of banks, the recent global financial crisis caused a significant increase in non-performing loans almost within every European country. The reason for this increase is related to the deterioration of the borrowers' creditworthiness as a result of an economic decline. This phenomenon demonstrated that credit risk do not depends only on specific microeconomic factors, but also the macroeconomic factors have an impact on it.

The recent economic crisis highlighted the importance of investigating the credit risk in relation with the macroeconomic context. Several researchers explored the links between banking risks and macroeconomic developments at an aggregate level, such as Salas and Saurina, Jimenez and Saurina, Quagliariello, Jakubík, Aver, Bohachova, Bonfim, Kattai, Fainstein and Novikov, Festic et al., Nkusu, Louzis et al., Castro, Diaconaşu et al.

According to the main findings the banking credit risk is significantly affected by the macroeconomic environment. A deterioration in the macroeconomic environment - proxied by slower growth, higher unemployment or falling asset prices - is associated with debt service problems, reflected into rising NPLs (Nkusu, 2011, p. 18).

According to Castro findings the credit risk increases when GDP growth and the share and housing price indices decrease and rises when the unemployment rate, interest rate, and credit growth increase. Thus during a growth cycle of the economy both consumers and firms face a better capability in loan repayment which contributes to a relatively lower level of NPLs (Castro, 2013, p. 672).

Periods of economic growth are sometimes accompanied by strong credit growth and there may be some tendency towards excessive risk-taking. And the imbalances created in such periods only become apparent when economic growth slows down and the loan losses increase (Bonfim, 2009,

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p. 281). Jimenez and Saurina, Bohachova explore the link between banking system and business cycle. In good times both borrowers and lenders are overconfident about investment projects and their ability to repay and to recoup their loans and the corresponding fees and interest rates. Banks' overoptimism about borrowers' future prospects, coupled with strong balance sheets and increasing competition, brings about more liberal credit policies with lower credit standards (Jimenez and Saurina, 2006, p. 66). As banks provide intermediary functions for the real economy, they are exposed to business cycle conditions that determine the aggregate health of the real economy. As economic conditions worsen during recession periods, the riskiness of intermediation tends to rise (Bohachova, 2008, p. 1). The procyclicality of banking sector performance and high economic activities growth is a signal of an economy overheating and therefore a slowdown in economic activity is likely to accelerate the growth of the NPL ratio (Festic et al., 2011, p. 310). Louzis finds that not only the real GDP growth rate, the unemployment rate and the lending rates have a strong effect on the level of NPLs, but also some bank-specific variables such as performance and efficiency indicators (Louzis et al., 2012, p. 1017).

The mentioned above studies explore the impact of different macroeconomic variables on NPLs dynamics such as: GDP growth rate, exchange rate fluctuations, terms of trade, interest rate changes, inflation, the rate of loan growth, public debt, housing price index, share price indices etc. None of the studies considered the impact of remittances and exports on NPLs dynamics, the most important drivers of economic growth in the Republic of Moldova. Thus, we additionally go beyond the existing work by asking whether NPLs dynamics in the banking system depends on the remittances and exports.

Taking into consideration that changes within macroeconomic environment translate themselves into changes in the quality of a loan portfolio, the purpose of our study is to identify the impact of several macroeconomic factors on NPLs specific for the economic development of the Republic of Moldova. In this regard we use the econometric multivariate linear regression analysis. The article reviews the existing literature on the determinants of the credit risk, describes the data and the hypotheses to test, explains the econometric model and presents the empirical results. The main findings are presented in the conclusion section.

Description of the problem and hypotheses to test

The general effect of the recent financial crises on Moldovan banking system was felt especially *on the banks' asset side*. Sudden increase of credit risk during this period led banks to restrict lending and to significantly increase the allowances for loan losses. The effects of the crisis were felt indirectly by the banks, especially through the channel of *remittances* and *foreign trade*. These macroeconomic indicators diminished substantially as a result of economic decline in Europe, particular in 2009. The decline of private consumption in the euro area as a result of crisis has contributed to a sudden decrease in Moldovan exports to EU and of the volume of remittances in 2009 and 2012. The crisis events have negatively influenced creditworthiness of Moldovan borrowers and respectively the quality of local banks' loan portfolios.

Proceeding from the specific situation that exists on the Moldovan banking system, we have chosen 5 independent variables which we assume to have influence on the volume and the dynamic of banking sector's NPLs: GDP growth rate, export growth rate, remittances growth rate, unemployment rate and private indebtedness. There is an interdependence of macroeconomic factors which reinforces their individual influence on bank risk, but can also make an empirical assessment of their relative importance for bank risk difficult.

We developed the following hypotheses about the character of relationship between the macroeconomic variables and NPLs.

We assume that a drop in the growth rate of GDP will lead to an increase of the NPLs, i.e. in the banking credit risk. GDP growth rate is used as a broad measure of business cycle conditions. According to the findings of Bohachova, Festic *et al.*, Castro, etc. during a growth cycle of the economy (GDP growth) the total incomes raise, and in consequence both consumers and firms face a better capability in loan repayment, which contributes to a relatively lower share of NPLs to total loans. As the expansionary period continues, however, credit is extended to lower-quality debtors and subsequently, when the macroeconomic environment develops less favorably, non-performing loans and loan losses increase.

The export growth rate may provide additional information regarding the impact of economic conditions. A decline in exports should lead to a decline of firms' revenues, and in consequence firms face a lower capability in loan repayment, which contributes to a relatively higher share of NPLs to total loans.

Another major source of income of households and firms in the Republic of Moldova is remittances. A consequence of the migration of workers is a reverse flow of remittances to support dependent relatives, repayment of loans, investment and other purposes. Moldova's d*ependence on remittances* is one of the highest in the world – with 24,5 percent of GDP Moldova ranks 5th in the world in 2012 at this aspect (World Bank, 2013, p. 3). It enhances the financial system vulnerability to potential volatility in these inflows. Remittances increase households' incomes and improve financial intermediation which can improve growth prospects for the country overall. A decline of this indicator will lead to a decline of households' incomes, and in consequence they face a lower capability in repayment of previous contracted loans, which contributes to a higher share of NPLs to total loans.

The relation between unemployment rate and NPLs has a positive nature, i.e. an increase in the unemployment rate will lead to a decline of households' incomes, which in its turn will increase the debt burden of households. On the other hand, a high unemployment rate means a drop in the effective demand and as a consequence it will decrease the production. Thus, the relation between unemployment rate and NPLs is directly proportional: an increase in the unemployment rate will lead to an increase in the rate of nonperforming loans.

Another independent variable we consider is private indebtedness, calculated as the ratio of total gross loans to GDP. High debt burdens make debtors more vulnerable to adverse shocks affecting their wealth or income, which raises the chances that they would run into debt servicing problems. Our assumption is that an increase of this indicator in Moldova's banking system has an influence on the vulnerability of borrowers to shocks and in its turn it will influence the future capability of loans repayment. Therefore, we assume a positive relation between the private indebtedness and the NPLs.

Methodology and data sources

Linear regression is an approach for modeling the relationship between a scalar dependent variable *y* and one or more explanatory variables denoted *X*. The case of one explanatory variable is called *simple linear regression*. For more than one explanatory variable, the process is called *multiple linear regression*. This term should be distinguished from *multivariate linear regression*, where multiple correlated dependent variables are predicted. In our case, for the regression analysis, we used a *multivariate linear regression.* The formula for a multivariate regression line is (Formula 1):

$$y_i = a_0 + \sum_{i=1}^{n} a_i x_i + \varepsilon, \qquad (1)$$

where y_i is the endogenous variable; a_i are parameters of regression, which show the average influence of individual fluctuation by exogenous variable x_i on the y, i =1, …, n; x_i are the exogenous variables influencing fluctuation of y, i =1, …, n; ε is casual or stochastic component.

The dataset consists of a panel of macroeconomic and banking annual data spanning the period from 2000 to 2013. Macroeconomic data used for empirical analysis of theoretical hypotheses come from Moldovan statistical database - all available online. NPLs is modeled at the macroeconomic level from the consolidated balance sheet of Moldova's banking sector. Banking data are taken from the database of the National Bank of Moldova and includes data on 14 Moldovan banks. The credit risk is measured as the ratio between the (aggregate) banks' nonperforming loans in their balance sheets and the total gross loans. This represents the dependent variable that will be used in our model. This variable is modeled at the aggregate level from the consolidated balance sheet of Moldova's banking sector.

Taking into account mentioned in the previous section macroeconomic variables, the resulting equation is as follows (Formula 2):

$$NPL(y_i) = a_0 + a_1 \times gdp\_growth\_rate + a_2 \times export\_change + a_3 \times remittances\_change +$$

$$+ a_4 \times unemployment\_rate + a_5 \times private\_indebtedness \qquad (2)$$

where the dependent variable is *NPL* and independent variables are the set of the factors influencing the *i*-th variable includes some macroeconomic indicators of the country.

x_i are the macroeconomic indicators of the country: GDP growth rate *(gdp_growth_rate);* Export change *(export_change*), the Remittances change *(remittances_change)*, the Unemployment rate *(unemployment_rate)*, the Private indebtedness *(private_indebtedness)*.

The resulting equation was calculated using the program Stata/SE 9.2 with the aforesaid factors. The results of the multivariate linear regression include coefficients of the model with their standard errors. Coefficients were calculated using the least squares approach. Statistical significance of the calculated coefficients is on the level of 5%.

Results obtained

Estimations of the coefficients for our econometric model and their statistical significance are presented in the Table 1. Most of the coefficients which explain the impact of factors are expected and statistically significant.

Table 1

Estimation of the impact of macroeconomic determinants on NPLs in Republic of Moldova

(dependent variable - NPLs)

Variable name	Variable interpretation	Coef.	Std. error
gdp_growth_rate	GDP growth rate	-0.6048626	0.6087085
export_change	Export growth rate	-0.0227912	0.1358579
remittances_change	Remittances growth rate	-0.0565172	0.1089813
unemployment_rate	Unemployment rate	0.8907301	1.785388
private_indebtedness	Private indebtedness rate	-0.0471661	0.3094421
_cons	Constant	10.21552	20.76098
F statistic		0.77	
Prob>F		0.5952	
R-squared		0.3257	
Root MSE		5.3471	

- assessment of all coefficients is at 5% significance level
- Sources: authors' calculation according to the data base of National Bureau of Statistics of Republic of Moldova and National Bank of Moldova

The empirical results provide evidence that there is an inversely proportional relationship between GDP growth rate, export growth rate, remittances growth rate and the dependent variable - NPLs is validated for Republic of Moldova. The recent crisis events have negatively influenced the above mentioned macroeconomic variables which in their turn influenced NPLs.

Thus the results show that a drop in the GDP growth rate in its turn diminished the creditworthiness of Moldovan borrowers and the quality of local banks' loan portfolios by 60.48%.

The export growth rate also negatively influenced the NPLs. Thus the results showed an inversely proportional relationship between export growth rate and NPLs. The analysis of estimations in the researched period revealed that the decrease of this independent variable influenced negatively NPLs by 2,27%.

An inversely proportional relationship was detected between remittances growth rate and NPLs. This variable diminished the creditworthiness of Moldovan borrowers and the quality of local banks' loan portfolios by 5,65%.

The empirical results provide evidence that there is a positive relationship between unemployment rate and NPLs, thus our assumption is validated and is according to the economic theory. This variable diminished the quality of local banks' loan portfolios by 5,65%.

Only the hypothesis about the influence of private indebtedness on dependent variable - NPLs is not validated by the model.

The model indicates that the most statistically significant influence on the evolution of NPLs has the unemployment rate. Fig. 1 illustrates the graphical correlation between key macroeconomic variables and non-performing loans in Moldovan banking sector.

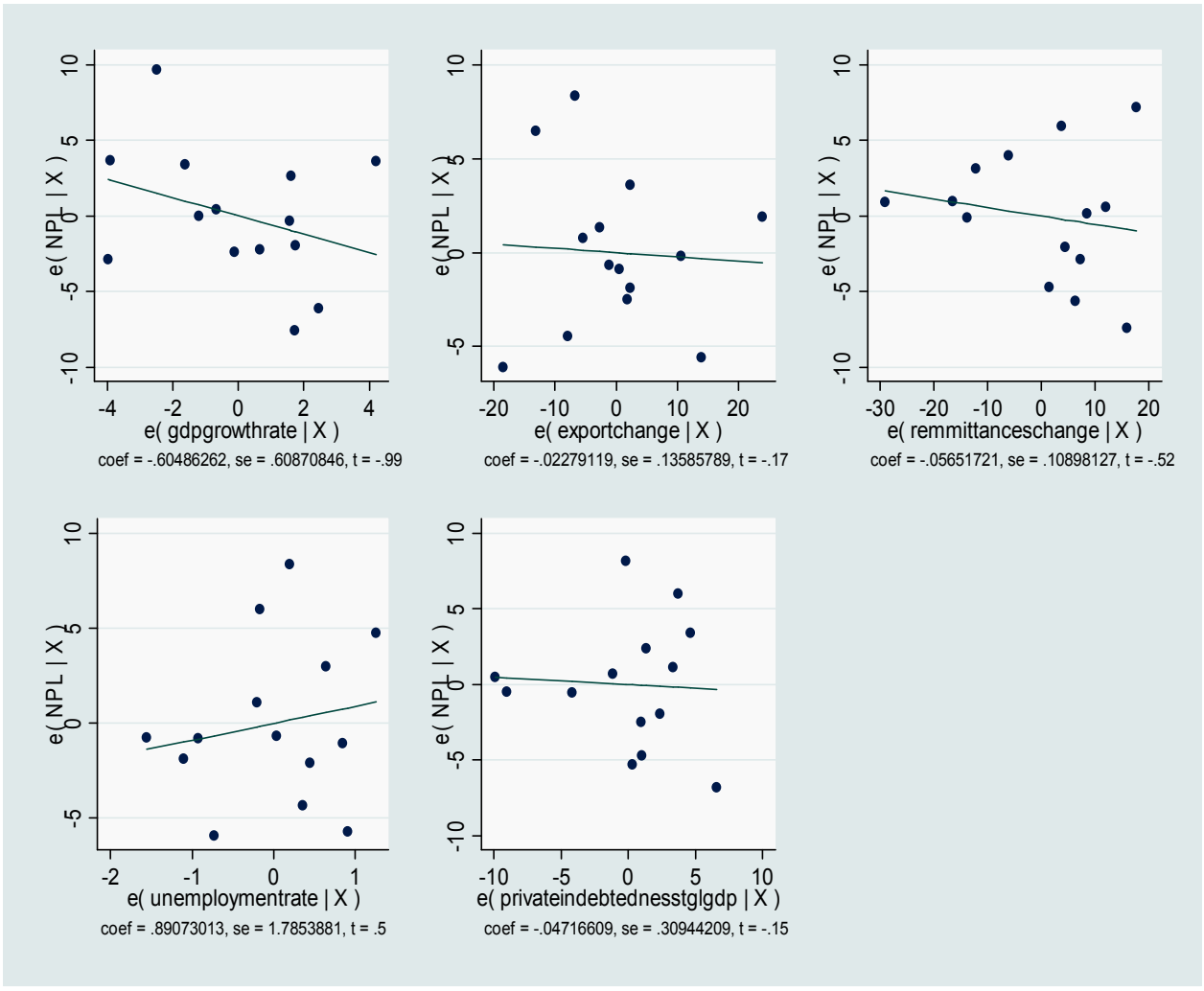
e(NPL | X)
e(gdpgrowthrate | X)
coef = -.60486262, se = .60870846, t = -.99
e(exportchange | X)
coef = -.02279119, se = .13585789, t = -.17
e(remmittanceschange | X)
coef = -.05651721, se = .10898127, t = -.52
e(unemploymentrate | X)
coef = .89073013, se = 1.7853881, t = .5
e(privateindebtednesstglgdp | X)
coef = -.04716609, se = .30944209, t = -.15

Figure 1. Non-performing loans and key macroeconomic variables correlation
Sources: authors' calculation according to the data base of NBS RM and NBM

Conclusions

The recent economic crisis highlighted the importance of investigating the credit risk in relation with the macroeconomic context. The research hypotheses that there are several macroeconomic factors that have an influence on NPLs ratio were verified. The empirical results provide evidence that the inversely proportional relationship between GDP growth rate, export growth rate, remittances growth rate and the dependent variable - NPLs is validated for Republic of Moldova. The recent crisis events have negatively influenced the above mentioned macroeconomic variables which in their turn influenced NPLs. Only the hypothesis about the influence of private indebtedness on dependent variable - NPLs is not validated.

The research has policy implications results; this means that structural measures and policies are fundamental to stabilize the economy and the banking system. That can be achieved by promoting external competitiveness, increasing productivity, and supporting growth and employment in our country.

Further research could be focused on additional macroeconomic factors that could have an influence on NPLs ratio, because the chosen factors does not explain the total variation of the NPLs measure. Another direction of this research could be oriented on some bank-specific variables such as performance and efficiency indicators with an impact on NPLs ratio.

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BEHAVIOR OF THE BANKING SYSTEM IN THE CONTEXT OF POSTCRISIS ECONOMIC DEVELOPMENT OF BULGARIA

Iskra CRISTOVA-BALKANSKA[46]

Abstract

The paper aims to reveal the peculiarities of the development of the Bulgarian banking system and the factors that determine its development. The banking crisis of 1996-1997, the introduction of the Currency board has pushed forward the consolidation of bank capital. Foreign banks have taken on most of the Bulgarian banking market. The Bulgarian banking system is looking stable, with a high liquidity ratio and low inherent risks. Nevertheless, the closure of one Bulgarian bank proved that credit institutions in Bulgaria required close monitoring by the regulator. Will the stabilization of Bulgarian banking sector be insured with the perspective to join the European Banking Union?

Keywords: banking system, financial system of Bulgaria, crisis

JEL classification: F36, G21

Bulgarian banking sector – financial results and evolution

The slowly overcoming of the debt crisis in Europe and the direction of centralized supervision of the European banking system by the ECB raised the question about the stability of the Bulgarian banking system. In 1996-1997, 18 Bulgarian banks were declared insolvent, as that was a banking collapse unprecedented in Europe. After the banking crisis (1996-1997) fewer banks remained in Bulgaria (32), but with a better management. The assets of all Bulgarian banks combined were USD 26.2 billion, or 80% of GDP.

The Currency board, introduced in 1997 continued the dependence of Bulgaria on the IMF. The standard instruments of the monetary policy can not be applied under a Currency board regime that is why the Bulgarian National Bank (BNB) used a combination of administrative and control measures to regulate the money supply. Banks were required to adopt financial buffers in order to maintain more stringent requirements in terms of reserves, also higher risk weights standards that were above the minimum required by EU financial structures and the Basel Committee on Banking Supervision. BNB, (in the context with the stand-by arrangements with the IMF, which ended in 2007) has taken strong measures to contain the growing of lending, to strengthen the banking supervision, and to promote prudential regulation and to build capital buffers.

During the global financial crisis, those requirements were used as a counter-cyclical measure for to allow banks to use part of its liquidity reserve. The severe prudential policy strengthen the banking system, but it also stimulates non-bank lending under the terms of international inter-enterprises loans, of asset-backed securities and the expansion of leasing operations. (leasing portfolio was below 5% of GDP in 2011). The Bulgarian banking system holds up well the challenges and the economic downturn in Bulgaria due to the economic crisis. The banking sector has shown resistance towards the sharp drop of the international capital flows, as well as against the increasing funding costs for the banks. However, the impact of the crisis was severe and imbalances accumulated in the Bulgarian economy laid hidden threats to the functioning of the Bulgarian banking system.

The Bulgarian banking system withstood against the impact of the debt crisis of 2008 -2010 in South European EU countries. It was mainly due to its underdeveloped structure of offered financial services and because of the almost defunct derivatives trading. The sovereign debt crisis in Greece had not a real negative impact on Greek subsidiaries operating in Bulgaria. This was due to the fact that subsidiaries of Greek banks in Bulgaria have no exposure in Greek private or government debt securities. Fresh capital has been exported by subsidiaries in Bulgaria towards the main banks settled abroad.

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The BNB implemented strong banking supervision, requiring the provision of allowances as a barrier against the occurrence of unpredictable events of different sort and sources. The commercial banks are obliged to maintain buffer capital above the statutory capital adequacy. Special bodies were created in order to maintain banking stability like the “Guarantee Fund claims” (since 1998) and the “Reserve Bank to the Guarantee Fund”, which is a mechanism for the providing of short-term liquidity. Furthermore, the Regulation No 11 of the BNB is focused on liquidity management. The fiscal reserve account created under the auspices of the IMF is the most important tool to counter act the moral hazard of the state and to ensure that the accumulated reserve in BNB provides the basic foundation of the Currency board.

The commercial Banks in Bulgaria were almost entirely privatized by foreign monetary institutions. Foreign banks are mainly coming from Austria, Italy and Greece. It is assumed that foreign subsidiaries have introduced some best practices in banking and improved the quality of the financial services. The three largest banks in Bulgaria are “DSK” owned by OTP Bank of Hungary, “Bulbank”, owned by the UCI (Unicredito Italiano) and “United Bulgarian Bank” (UBB), owned by the National Bank of Greece. Citibank is the only bank from the United States that focuses on corporate, not individual customers.

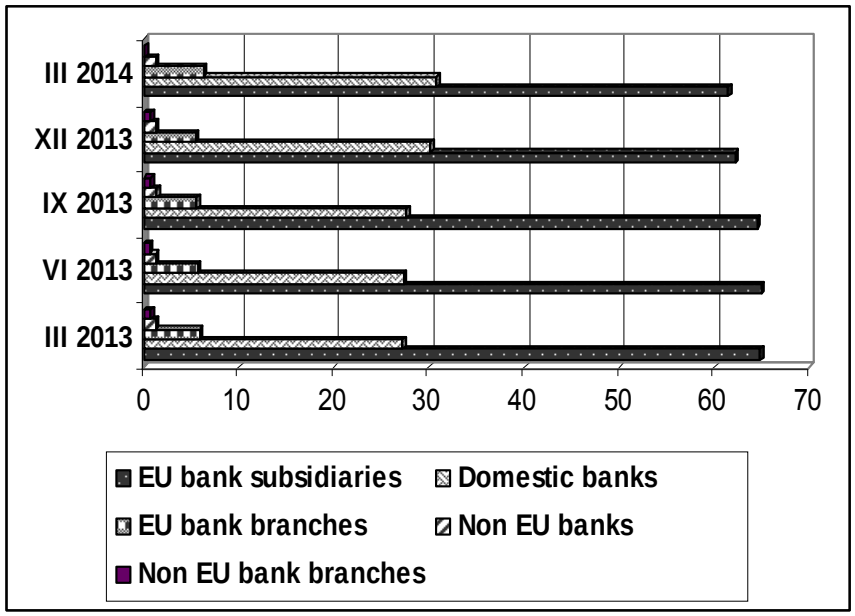

Figure 1. Market shares of Domestic and Foreign Banks (%)

Source: Data from “Banks in Bulgaria (January-March 2014) Bulgarian National Bank p.9”.

The increase in size and financial strengths of Bulgarian banks was due to the growing private sector, the increasing credit demand and the competitive pressures of the market. With the exacerbation of competition between banks increased also the positive development and the consolidation of the banks’ capital. For example, in 2005 the Italian Unicredit Bulbank acquired Austrian HVB (Bank Biochim and Hebros). Thus was creating the largest financial group in the country with almost 25% of the bank market share. EU bank subsidiaries hold more than 60% of the bank market share and domestic banks hold more of 20%. (Fig. 1) In the beginning of 2014 the relative market share of Bulgarian banks rose slightly. Domestic banks contributed almost entirely to the growth, their market share reaching 30.8% in March 2014. The market share of the EU subsidiary bank group decreased to 61.5 %. EU bank branches increased their share in assets (to 6.3 %), while that of non-EU bank branches decreased to 0.1 % The market position of non-EU banks remained at 1.3 % The fragmentation of the market is high, as the 3 biggest banks hold about 80% of the market. (Figure 1)

Table 1

Total Assets, Total Gross Loans, Total Claims on Financial Institutions in BGNs and Loans as % of Total Assets and Claims as % of Total Assets

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Assets in blns BGN	33	42	59	70	71	74	77	82	86
Assets to GDP (%)	72	82	98	100	104	105	102	106	110
Total Gross Loans in blns BGN	24,2	31,3	45,9	56,9	59,9	62	64,4	64,7	68,1
As % of Assets	73,56	74,52	77,77	81,29	84,37	83,78	83,64	78,9	79,19
Total Loans to NFIs and Other Clients in blns BGN	18,4	22,8	38	50,2	52,4	53,9	56	57,8	58,5
As % of Assets	55,76	54,29	64,41	71,71	73,8	72,84	72,72	70,49	68,02
Total Claims on Financial Institutions in blns BGN	5,8	8,6	7,9	6,7	7,4	7,7	8,3	6,9	9,6
As % of Assets	17,58	20,48	13,39	9,57	10,45	10,41	10,73	8,41	11,16

Source: BNB

In 2013 bank assets rose by 0.9 %.The increase of total bank assets was due to the strong upward trend of bank deposits. Despite the emergence of positive GDP growth of Bulgaria in the last 2 years the uncertain political environment continued to have an unfavorable impact on the economic climate, which is preserving the higher saving rate of households and firms. Households do not have many opportunities and relevant information to invest in securities. After the crisis they are much more cautious and prefer to save because they are too uncertain about the future. In 2005-2013 the average ratio of total loans to non financial agents (NFA) to total assets is around 80%. The total claims on financial institutions (FI) as a percentage of assets is decreasing in 2008 – 2012 in comparison with previous periods, but in 2013 the ratio began to grow, which was due to accrued inter banks operations.

Until 2007-2008 the GDP in Bulgaria was fueled also by the increase of the credit activity of banks towards households and firms. Since 2007 onwards the level of assets to the GDP growth is relatively a constant value. However that there is some increase of the ratio (Bank assets to GDP), more significant upward trend of this ratio could appear only if investment banks operations and foreign direct investments (FDI) could boost ahead the financing of the economy. Despite the emergence of moderate economic activity in Bulgaria and in EU countries, the recent rise of the geopolitical risk (further sanctions on Russia from the EU and USA) is likely to narrow the GDP growth perspective in the near future.

The Bulgarian banking sector seemed well prepared to counter the economic downturns of the economy. Even more, the evolution of the Bulgarian banking system was favorable according the BNB data. The banking sector went well during the crisis and continues to have strong overall capital buffers. In 2013 the stability of the banking sector seems well preserved after the consolidation of the banking sector.

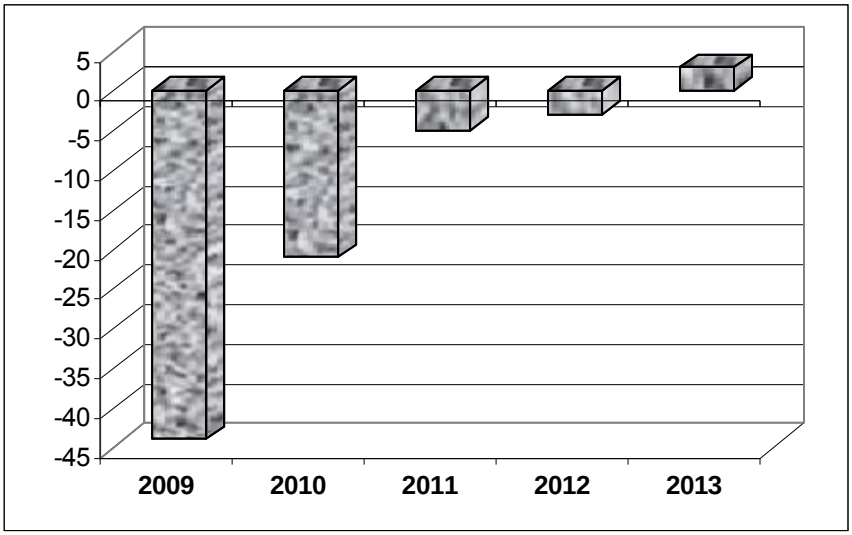

Figure 2. Net profit of banks in Bulgaria. In % y-on-y

Source: BNB

After a sharp decline in 2009-2010, in 2013 Bulgarian banks stabilised their financial results. For 2013, the profit of Bulgarian banks reached EUR 299.11 million, or increased by 3.2%. The contribution of transactions with securities to the bank profit declined slightly to around 1/3 of the total profit in comparison with 2012. (BNB) The decrease was due the increase of transactions with securities, as banks maintained long exposures at this segment of the market in Bulgarian Government securities. However significant variations existed in the amount of banks' profits, which was due to the drop in interest rates and the level of impairments. (Figure 2)

The capital adequacy ratio was 16.89% (as of September 2013) The adequacy of Tier I capital is 15.61%; The ratio of liquid assets to liabilities was 25.25%. The effects of earnings are that by the end of March 2014 they amounted to EUR 115 million and were higher than in the same period of 2013. It boosted the Return on equity (ROE) values to levels observed in early 2010. Return on Assets (ROA) was 1.03% (0.81%) in March 2013. Respectively ROE increase to 8.35% (6.40% in March 2013.) Cost to income ratio improved slightly to 53.4%.in 2013 compared with 2012. (BNB data)

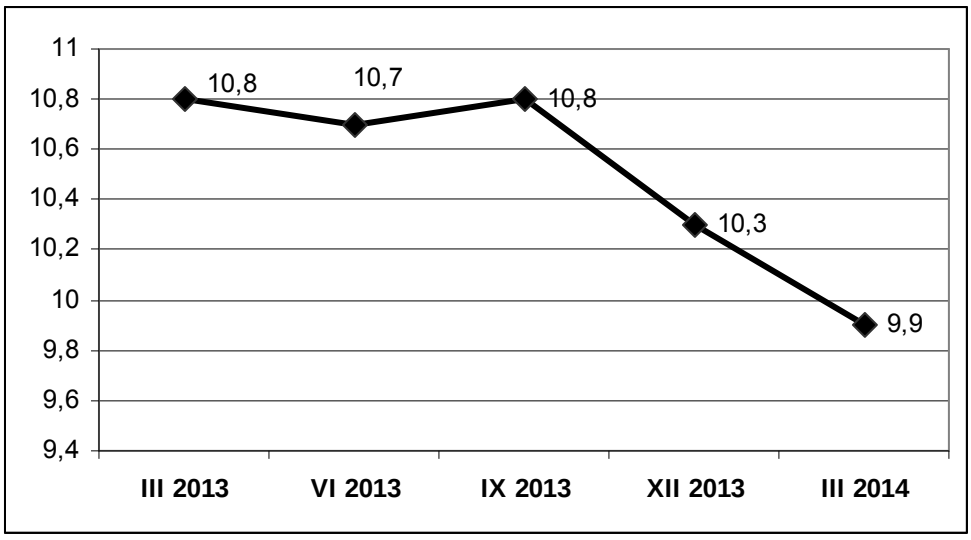

Figure 3. Share of net non performing loans in net loans (Excluding those to credit institutions)
Source: BNB

Gross non-performing exposures amounted to 17.20% against 16 62% at the end of 2012. In the first quarter of 2014 the capital buffer stock strengthened coupled with the retention of adequate liquid buffers. Net non performing loans are declining. (In October 2013 non-performing loans over 90 days are 10.66% at the end of 2013 of the credit portfolio of banks, compared to 10.62% at the end of 2012) For 2013 and 2014, both classified loans and those past due over 90 days posted a decrease. In March 2014 classified exposures declined by 1.7% compared with the end of 2013.The share of gross problem loans and their impairments played a major role for the continued decline in the net amount of loans past due for more than 90 days. Their share in the net credit portfolio fell to 9.9% (against 10.3% 3 months earlier). (Figure 3) Non-performing loans have stabilised and remain well provisioned. Credit growth has resumed in some tradable sectors" (BNB). The external financing of subsidiaries in Bulgaria is reduced and they rely on internal sources of financing. The squeeze of bank credits towards households and firms increased the offered liquidity on the inter bank money market. *However, domestic banks are expanding their portfolio faster compared to foreign banks subsidiaries, which was a sign of higher risk exposure. The systemic importance of local entities has increased following their gains in market share, including two acquisitions of foreign-owned banks in the country in 2013*.

The credit expansion by a limited number of domestically owned institutions required close monitoring by the regulator, which has so far proved to be a conservative one in order to identify risks and take corrective measures early enough when risks begin to emerge. It seems that the Bulgarian banking system continues to be in a more favorable position compared with other EU countries banking system. The Bulgarian banking system is looking stable, with a high liquidity ratio and low inherent risks. In 2013 the Bulgarian banking sector seems that it has managed to preserve financial stability and no financial sector related imbalances could be identified. (European

Economy p. 17). In a country struggling with corruption, a weak judiciary and unstable government it seems that only the Bulgarian banking sector diverges with the economic stagnation.

Nevertheless, the Bulgarian banking sector was qualified by Standard& Poors like a country with good indicators, but with a "moderately unstable" banking system. The quality of the balance sheets of some domestic banks seems doubtful in the frame of a very aggressive market penetration at the internal and neighboring markets.

The attack of the Bulgarian banking system came from outside the banking system. For a very short time a deliberate and systematic attempt was made to destabilize the Bulgarian banking system.[47] The BNB took control of Commercial Corporate Bank (CCB) and the clients of banks rushed to withdraw their deposits. The depositors withdrew also around EUR 400 millions from First Investment Bank (FIB). The European Commission approved to extend an emergency credit line of EUR 1.7 billion to support financially the local Bulgarian banks. BNB has taken measures to further increase the liquidity and safeguard the banking system.

The closure of CCB by BNB was due to specific reasons related with the suspension of its operations after more than 20% of deposits were withdrawn, causing a liquidity gap. About EUR 4 billions in all has been stranded in CCB which exacerbate the unfavorable financial situations of many Bulgarian companies and individuals. As a result some businesses are having trouble making payroll and many families have to scrape by without access to cash. The BNB, which is supervising CCB, was not sure how to proceed, whether to nationalize the bank with taxpayers' money or to look for a foreign investor. The waiting of cash money from CCB could kill many enterprises. More than 80 000 jobs could be lost if CCB go bankrupt. Now, the closure and the bankruptcy of CCB is a real fact since in November 2014 it was voted by the Bulgarian Parliament. The issue in the Bulgarian banking system is that the deposits may be a problem to be financially covered. Amendments to the Law on Deposit and Insurance (November 2014) provide in case of financial and liquidity problems of a bank; people to have the rights to access their deposits within 7 days. The depositors of CCB will have the right to be paid within 20 days in accordance with EU rules. But CCB may also default on its debts in bonds.

A new type of guaranteed deposits were introduced, at the amount of 250 000 BGN (EUR 127.821), but the security will be temporary. This type of guarantees will cover only deposits associated with special events. Thus Bulgaria honors its commitment to the European Commission (EC) to change the Law, so as not to delay for months the access of banks' clients to their deposits. It is a way to escape to the EC sanctions. Despite the disturbances in the banking sector, Bulgaria managed to sell EUR 1.49 billion of 10 years Government bonds (June 26th) attracting strong demand from international investors whose bids more than doubled the amount on sale. The 2,9% annual coupon was the country's "lowest ever" in an auction.

The European supervisory mechanism and the position of Bulgaria

From 1 January 2007 (with the accession of Bulgaria to the European Union) BNB participates in the European System of Central Banks. Bulgaria also participates in the work of the European institutions under the Directive on Recovery and Resolution of credit institutions. Bulgaria's position in this regard is the following: The recapitalization of monetary institutions with domestic fresh liquidity sources must be done with financial instruments from which are subtracted deposits (bail-in). The balance between the general framework regulation and the flexibility rules for a longer period has to be implemented in order to adjust to the new rules for restructuring. Bank close cooperation should be taken with the appearance of cross-border banking crises. The proposal for flexibility has been accepted by ECOFIN in the use of internal financial resources for the recapitalization of banks and it will be introduced by 2018. In 2014, Bulgaria adopted the Capital Requirements Directive and the Capital Requirements Regulation (adopted June 2013). These provisions have been introduced by Basel III.

Under the Basel III rules the capital must be improved and its commitment to the inherent risks. The requirements of supervisory standards at European and global level are increasing As a consequence, the Ordinance №9, which regulated the specific provisions for the credit risk dropped. The European Single Supervisory Mechanism will manage the attainment of a maximum financial harmonization and equal treatment of EU institutions.

[47] "According to the authorities, criminals tried to disrupt the system by sending e-mails and text messages urging people to withdraw their funds from several large banks" (The Economist 2014)

Bulgarian authorities did not intend to join the European Supervisory Mechanism (ESM) (or the First pillar of the European Banking Union) of the euro area. The arguments of BNB against the entry into the European Banking Union were as follows: a) The country would take risks if it joins ESM, before joining the euro area, because there will be a significant transfer of national supervisory power to EU regulators. b) Bulgarian banks will not have the possibility to be financed in fresh liquidity resources from the ECB, nor to receive a capital support from the European stabilization mechanism at the onset of a crisis situation. c) Countries, outside the euro area, will not have the rights to participate in the vote for the taking of final decisions during the exercise of the Supervisory tasks. Actually the Government announced changes in its position in July 2014 in order to strengthen the banking and financial discipline after the closure of the CCB. There was a declaration by the Bulgarian official bodies that the country must accept the conditions of the European Banking Union and join it in due time..

However the economic situation in the country is not yet balanced after the crisis. The country has limited prospects for future business development and the generation of profits is uncertain, so those are strongly constrained factors for a future development.. The economic and the industrial risk is still prevailing, which is an obstacle for the strengthening the banking sector.

The failure of CCB sets Bulgarian banking system under stress and uncertainty. Bulgaria's banking system is still unable to shake off of the effects of the deep economic crisis, which had an extremely negative impact on per capita income and the solvency of the firms. Doubtful loans have risen and they continue to threaten the stability of some banks, despite the signs of certain overcome of household and companies indebtedness. The trouble has pushed Bulgaria, the EU's poorest country, down in the ranking of the international financial community. The turbulence in the Bulgarian banking sector delays the prospect of being accepted in the exchange rate mechanism (ERM) II and start the preparation to join the euro area. "Bulgaria's longstanding goal to join the euro area is hardly being helped."(The New York Times") There are some signs that the emerging banking crisis in Bulgaria has been overcome with the strengthening of supervision and the strict application of EU norms and rules. There are also some expectations for improvement of the Bulgarian economy, which proved to be optimistic, amid the continuing stagnation, which will help to stabilize Bulgarian banking sector, so that they participate actively and properly in the financing of the economy.

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FINANCIAL SYSTEM AND MODERN MONETARY MECHANISM

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Nicolae BASISTÎI[50]

Abstract

This study determines the modern approaches to the implementation of monetary policy and regulation of financial systems. Set of measures to prevent and overcome the financial crisis is grounded taking into consideration different areas of research and the IMF (Poole W., 2010; Roger S., 2010).

New tasks of monetary policy in central banks are specified and they are intended to ensure the financial stability of the state (within the common financial policy).

The main directions of elaboration and implementation of new monetary policy mechanism, which is intended to ensure the effective solution of problems in macro prudential supervision and financial stability, are examined.

Keywords: Monetary policy, financial stability, macroprudential analysis, flexible inflation targeting, liquidity risk.

JEL Classification: E52, G15, G18.

Introduction

The financial system can be described as a combination of different mechanisms and relations, each of which is characterized by the specific features in the formation and usage of the financial resources and different role in social redistribution.

The presence of common features at the base of all financial relations does not exclude certain differences among them, which leads to the development of relatively specific areas of these relations in the framework of a single economic category of finance. In developed countries the financial system includes the following categories of financial relations:

- state budget system;
- extra-budgetary special state funds;
- public credit;
- private funds with different forms of ownerships;
- capital market.

Delimitation of the financial system into separate units is due to differences in the tasks and roles of each unit, as well as to methods of formation and distribution of centralized and decentralized funds of financial recourses. Mainly, the centralized budget funds are established by redistribution of a part of Gross National Product.

The important role played by the state in the field of economic and social development, leads to the necessity of centralization at its disposal of significant amount of financial resources.

Forms of their usage are budgetary and extra-budgetary funds, which are dictated by the state's needs in economic, political and social problems. Decentralized financial funds are formed from companies' income and savings.

Despite the separation of economic activities and relations, the financial system can be considered as a single mechanism, giving the fact that it rests on a unique base of accumulation and redistribution of the financial resources among the different parts of its system.

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Taking into account the instability of the world financial markets and national financial systems, the role of the monetary and credit policy pursued by the central banks increases essentially. It is caused by a sharp reduction of the financial cycle duration, high volatility of the markets which all, in turn, demand high level of efficiency and a good coordination of actions carried out by all subjects of the financial market in order to assess any situation and take a corresponding decision. However, as the practice has shown, traditional approaches do not always correspond to requirements of post crisis development of the world economy and need certain modernization or updating on the basis of transition to some new monetary conditions. The problem does not consist simply in working out some additional measures or new instruments of the monetary policy in order to counteract the crisis, but in the monetary policy substantiation that will be capable to warn about any appearance of any systemic financial crises or to neutralize their negative consequences in case of any need.

Description of the problem

The regulation of the financial system can be carried out by the public sector, but as well by the corporate self-regulation, too. Mechanism of state regulation of the financial system comprises a set of tools and methods with a financial impact on the national economy. By manipulation of its revenues and spending, addressing different economic priorities, the government can influence different economic processes. Among these tools and methods we can mention the following: taxes, budget expenditures, depreciation methods, forms of public credit, etc.

In the mechanism of state regulation are important both revenues and expenditures. The private capital formation is based on enterprises income. At its turn, the structure of the expenditure distribution changes the amount of the available financial resources of the companies, influencing the expansion of the economic activity at branch and territorial levels.

Government financial funds play a key role in ensuring certain rates of development of all sectors of the economy, the redistribution of financial resources between economic sectors and regions of the country, between the productive and non-productive areas, and between the forms of property, individual groups and segments of the population. Effective use of financial resources can be ensured by a proactive fiscal policy.

Corporate self-regulation is determined by the methods of constitution of private capital. These methods are selected and used by the business entities within the given state law. Self-regulation is used for internal redistribution of own resources or for attraction of capital from financial market.

Self-regulation is provided by the market mechanism. Through the price setting system the impulses are transmitted from consumption to production, setting the framework of the Gross National Product distribution and redistribution. The monopoly and the degree of market development limit the freedom of movement of economic resources, in this case the equilibrium being very difficult to achieve.

Methodology and data sources

The combination of centralized and market-based regulation of the financial system takes account both of private and government interests. But, the absolute priority belongs to the state, which at his own can make certain decisions. At the same time, the government forms the legal framework within which the enterprise must activate. Nevertheless, as evidenced the recent financial crises, the government regulation is not always perfect. Because of this followed a period of large reforms in the regulation systems after the financial shock, both at regional and global levels. The main lessons of the global financial crisis and mentioned by the majority of scientists and experts are the following.

The first: The banking sector served as the source of the crisis, because it has become a poorly regulated part of the overall financial system due to the fact that it accumulated considerable volumes of individual risks. Based on the experience of the financial crises of the past decades, the least regulated sectors, activities or even individual financial instruments became the main sources of these crises. Therefore the next financial crisis should be expected in the least controlled sector of the financial system, group of financial products or monetary institutions. Besides this, the theory of ‘risk dispersion’, which has been carried out by many financiers for many years who believed that it is possible to avoid any system shocks by hedging individual risks, has not been confirmed.

The second: The methodology and instruments used for system risks and crises forecasting have proven to be insufficiently developed or in some cases even were not applied at all. In many countries regulatory systems have not considered the real problems of the financial sector development, and the regulators themselves failed to anticipate crises events and to respond instantly to any banking panics and financial shocks. Besides this it has appeared that in many countries there is no any uniform approach (and corresponding mechanisms) ready to form and realize the state financial policy; thus, it all has complicated the overall process of crisis consequences overcoming.

The third: Crisis consequences were eliminated based on the use of the monetary policy instruments carried out by central banks, as well as on active actions taken by the governments that had to use considerable amounts of budgetary funds. However, the practice has shown that this method appeared to be less efficient for many countries, especially from the social and economic point of view; it has led to social and economic crises and to the strengthening of social tension.

The fourth: The economic model based on advanced development of the financial sector being compared to the real sector of the economy, has once again aggravated the contradiction between the production of real cost and the movement of its monetary and financial forms that promoted the strengthening of inflationary processes and macroeconomic instability.

However, if in an estimation of consequences and lessons of the crisis experts were more unanimous, then in justification of actions intended for prevention and overcome of financial crises there was a huge variation in their opinions. Generalization of all the proposed measures can identify several areas, some of which, in our opinion, are not particularly new, and the use of the others can unlikely be sufficiently effective in the future.

1. The strengthening of the state regulation and supervision of banking activity, financial markets, financial institutions and even financial products is offered traditionally. Although it is a really important task, in our opinion, the addenda to the Agreements on capital (Basel III) offered by Basel Committee on Banking Supervision do not introduce any cardinal changes either in methodology, or in the whole process of regulation and supervision. They can be considered only as cosmetic additions that reflect the current situation; and the extension in time of all innovations implementation (until 2019) only confirms this.

2. The active involvement of governments to address the problems of the financial sector by increasing budget expenditures (including the maintenance of solvency and liquidity of the institutions from the financial sector and the realization of capital expenditures in specific areas or sectors of the national economy).

3. The request from politicians and the public addressed to central banks with the aim to pursue a policy directed on stimulation of the real sector development, the development of separate branches or even certain corporations. In some cases, there were proposals to increase the share of state ownership in the structure of the financial sector.

4. The introduction of macro-prudential analysis systems in the central banks or independent mega-regulators in order to monitor the macroeconomic situation, identify imbalances and develop measures to prevent the systemic risks. Although this approach is also not essentially new, since prior to the crisis most of the central banks around the world had units in their organizational structure whose main responsibility was to ensure financial stability, it deserves attention as a prospective direction towards the extension of financial analysis methodology.

5. The complex of proposals having global character: the world monetary system change, the creation of new world and regional financial institutions and supranational regulatory and supervision bodies, the expansion of the regional currencies spectrum, the change of principles referring to the national currencies issue, return to the ‘gold standard’ and many other.

Most clearly the new tasks of monetary policy and principles of financial markets regulation for the post-crisis period were defined by IMF. Analyzing the impact of the global financial crisis, IMF experts have identified the following three priorities for the central banks’ policy, which are designed to promote financial stability:

- To use the results of macro-prudential analysis and to expand the authority of the central banks as main regulators of the financial market in the process of the monetary policy elaboration and implementation;

- To provide the priority to price stability measures as the primary objective of the monetary policy;

- To improve the liquidity management within the banking system by increasing the flexibility of procedures used by the central banks, as well as to increase the activity control and regulation of the financial institutions and markets that are potential recipients of any liquidity support.

Appreciating the IMF proposals positively, it is necessary to notice anyway that, despite the high level of their overall theoretical development of the monetary theory and their huge practical experience in the monetary policy implementation, there is no any uniform recipe which is equally suitable for all countries and which is capable to eliminate any consequences and moreover to foresee any major systemic financial crises. Despite the generality of some problems, the ways to overcome crisis and to ensure the post-crisis development of national financial systems can be different in some countries.

Today the general approach to elaborate and implement the monetary and credit policy of the central banks is to direct the attention of the central banks to the maintenance of national monetary units stability and realization of monetary regimes which will be based on the maintenance of price stability. According to experts, the maintenance of the overall price level stability in economy should become a main objective for any central bank; thus this approach will offer the possibility to conduct an anti-cyclic monetary and credit policy as well as to ensure a high level of employment [5; 6; 7].

At present a complete revision of the monetary and credit policy objectives and goals occurs in many countries. There is a function of financial and macroeconomic stability maintenance included in the mandate of the central banks which requires expansion of the monetary and credit policy instruments, the broadening of the central bank's powers in order to fulfill this function, as well as the strengthening of the central bank's operational and institutional independence. Today the dominant approach is the one that declares the main objective of the central bank's monetary policy as being the maintenance of the national monetary unit stability, which should include both the stability of exchange rates and prices; the rest of the central bank's objectives should be subordinated to this one being classified by the degree of their importance.

In particular, the achievement of the price stability should contribute to the financial and macroeconomic stability within the framework of the state uniform financial policy realization.

In practice, during the last years, especially during the world crisis period, the central banks of many countries have constantly been facing the necessity to find a reasonable compromise when choosing the corresponding instruments for price and financial stability maintenance. The point is that the central banks do not have special instruments for a direct impact on the level of the financial stability, for which the source of imbalance is often out of any possible direct influence of the central bank. Besides, there are some discussions concerning any possibility for the central bank to prevent any sharp changes in assets price (for example, in real estate and securities prices) via the central bank's active interest rates adjustment policy. There is still also another debatable question on the possibility to solve the conflict between the maintenance of financial stability and the guarantee of price stability. In our opinion, these and some other problems should be solved within the framework of the general realization of the state financial policy strategy, as well as within the framework of the new monetary regime carried out by the central bank.

At present the most effective monetary regime that promotes the price stability is the one dedicated to the inflation targeting. This regime has become a preferable basis of the monetary and credit policy realization for many central banks; although in its classical form it has been already applied in 26 countries only. Some central banks (in particular ECB, FRS, Bank of Japan, Swiss National Bank) have not passed on to a practical realization of this monetary regime completely yet; they use some of its individual elements only. According to the research done by IMF, within the framework of this regime in developed countries the inflation is maintained at the target level of 1-3 %, and in developing countries - at the level of 3-6 % [8, p. 46-49].

The inflation targeting, being one of effective ways for price stability maintenance and for inflationary expectations fixation, is of great importance for the countries with emerging markets. Since 2000's these countries has been consistently passing to use individual elements of the

inflation targeting regime, or to its more flexible alternative, because there are multiple objectives standing before the central banks which cannot be achieved in long-term outlook in case if the inflation is maintained within a certain range. Besides that, the presence of the rate of inflation over 7-8 % significantly inhibits the transition to this new monetary regime. Nevertheless, since 2010 the National bank of Moldova (NBM) has practically gone to the monetary mode based on the inflation targeting. The Strategy of monetary policy of the National Bank of Moldova for 2010-2012 states that to achieve and maintain the price stability the NBM will establish the inflation target measured by the consumer price index published by the National Bureau of Statistics, at the level of 5.0 % for the year 2010 with the possible deviation of ± 1.0 percentage points [3].

According to the standard approach the basic elements of the inflation targeting are:

1) The determination of the price stability done by the central bank as the primary goal of the monetary policy and the establishment of accurate quantitative indicators of inflation;

2) The high level of operational independence of the central bank;

3) The central bank accountability for the achievement of the established target indicators of inflation;

4) To carry out the monetary policy based on the assessment of the inflationary pressure and inflationary expectations.

Thus, the monetary regime, based on inflation targeting, is considered mainly as a function or a task of the central bank, as well as a component part of its monetary policy. Hence, the list of the instruments used to achieve the objectives of this regime is limited to the instruments of the monetary policy; this fact creates natural barriers in possibilities of the effective use of this regime in order to achieve other objectives established for the central bank.

In recent years within the limits of the inflation targeting regime and taking into consideration the overall slowdown in economic growth in developed countries, the central banks conducted a soft monetary and credit policy in order to stimulate the economy, which resulted in a gradual reduction of the basic interest rate. This has contributed to increased demand for money that has led to an unjustified growth in lending. In turn, the financial and credit institutions have reduced their requirements towards the size and quality of collateral, have eased their credit conditions, and have expanded the circle of potential borrowers. It was supposed that such measures will increase the volume of lending and stimulate the economic growth.

It should also be noted that due to lack of effectiveness of the inflation targeting regime to adequately respond to the manifestations of the financial crisis, to take into account the sharp fluctuations of the exchange rate and the value of financial assets due to non-monetary factors, as well as to reduce the negative impacts and promote financial stability, the central banks of several countries began to revise their attitude towards the inflation targeting regime. Thus, the crisis has called into question the effectiveness of inflation targeting as the sustainability framework for a monetary policy. This is due to the fact that, despite the strong economic growth and low inflation in the pre-crisis period, many developed countries have failed to provide a sound basis for financial stability and to reduce the tension on the financial markets. Once again the practice has questioned the thesis of the possibility to achieve both high economic growth and stability of the financial and economic systems simultaneously.

Therefore, in recent years in many countries there is a transition to a flexible targeting regime, in which the main effort of the central banks was concentrated on achieving the inflation target in the medium term of 2-3 years. This allows the central banks to combine their primary objective with the other tasks, particularly in the post-crisis period a special attention is paid to ensure macroeconomic and financial stability.

That is why the main tool of the monetary policy under the inflation targeting regime is still the interest rate which today should be considered not as the tool of the monetary policy only, but as one of the key macroeconomic indicators. However, according to many experts, the use of short-term instruments cannot provide long-term and sustainable management and moreover the achievement of any long-term goals. If short-term instruments of the monetary policy can be successfully used to manage the current opportunities of financial markets and inflationary expectations, then in order to prevent imbalances in the financial system there is a need of

instruments that can ensure not only their stable use, but also their long-lasting action, which should also include the system of the state regulation.

Results obtained

Lessons from the crisis suggest that the practice has delivered more than a challenge for the central banks to not only ensure the price stability, but also to achieve the overall stability of the financial system as part of the overall state financial policy. Firstly, it means that the monetary policy emphasis should be shifted from one-sided consideration of the value of money in terms of its purchasing power to an integrated assessment based on the value of money as capital. That is why the modern monetary policy of the central banks as part of a flexible inflation targeting regime, in our opinion, should be based on a combination of the effective interest rate policy with the advanced approach towards targeting of monetary aggregates, with a focus on optimizing their structure.

Secondly, the implementation of the new monetary regime must take into account the need for coordination of monetary and fiscal policy under a single state financial policy. This is due to the fact that in emerging markets the interaction between external factors and internal economic processes carries out a complex and often ambiguous nature, making it difficult to perform any macro-prudential analysis. In addition, there is a domination of market-based incentives over the regulatory constraints, which is specific for modern financial systems [4, p.7-15]. Therefore, in our view, within the framework of the macro-prudential analysis the analysis of systemic risks must be integrated with the objectives of both price and financial stability.

Thus, the foundation of the new monetary policy regime should be based on goals of price and financial stability as well as on the possibility to influence the macroeconomic stability through the implementation of monetary and credit policy within the framework of a uniform financial policy implementation carried out by the state. This is quite a difficult task, because the number of instruments used by the central bank is limited. If the central banks can use a set of specific instruments and "monetary rules" in order to promote their monetary and credit policy (M. Friedman, J. Taylor, L. Ball, A. Orphanides, the central banks of Canada, Norway, etc.), then in order to ensure the financial stability such rules are absent [2, p.784]. There is a need to use the same instruments to solve two or more tasks sometimes. However, this approach violates a so-called J. Tinbergen's rule, which stipulates that the number of targets must never exceed the reserve of available instruments. Consequently, in order to achieve multiple objectives there is a need in a greater number of instruments [1].

Given the current trends in development of the monetary policy, one of the techniques used by central banks to address these challenges should be a macro-prudential analysis. Its essence consists in the ongoing monitoring and complex analysis of relationships inside of the financial system, the interaction of the financial system with the real sector, the budgetary sector, as well of trends in global financial and commodity markets development in order to identify and prevent any systemic risks. As part of the macro-prudential analysis implementation, the financial stability is achieved by identification and reduction of systemic risks, by identification and prevention of imbalances in credit market, as well as by limitation of liquidity and market risks.

The crisis also demonstrated the imperfection of methods used by the central banks to manage the liquidity of the banking system. Many central banks have had to expand the list of securities (in particular - to include corporate bonds), which are used as collateral for refinancing loans. Besides this, up to now it was thought that refinancing loans should preferably be short-term ones. However, due to the fact that during the crisis, many commercial banks did not manage to reimburse their loans to the central banks, as well as due to the fact that, in some cases, politicians required to offer lending of individual sectors of the national economy, the practice has forced the central banks to offer refinancing for longer periods using the so-called stabilization loans. And, according to the ECB declarations, even the ECB will probably continue to implement programs aimed to ensure the stability of the banking system on the basis of long-term refinancing operations with the maturity of up to 6 or even 12 months.

It should be mentioned that one of the main instruments of liquidity management remains the mechanism of required reserves, which in recent years in our literature has been criticized groundlessly. The availability of required reserves and the presence of flexible mechanisms of their use is a key factor for monetary aggregates formation, which contributes to the prevention of liquidity shocks.

The crisis has shown that the practice of banking regulation used within the last period of time and based on micro-prudential approach and on consideration of the need to reduce individual risks (even with the application of the Basel II standards) was unable to prevent the occurrence of systemic risks. This suggests that the "spread of risks" theory that prevailed in the 1990-2000's was not confirmed in practice. The use of hedging instruments for individual risks does not allow hedging the aggregated risk of the financial system; sometimes it even supports the aggregated risk concentration stimulating therefore the appearance of global imbalances. As it was mentioned by Mr. A. Simanovsky, in correspondence with the concept of micro-prudential regulation the attention of supervisory bodies was directed at the individual risks prevention of certain financial institutions. However, contrary to theoretical expectations, the attempt to reduce individual risks has led to their accumulation, which stimulated the appearance of systemic risks [4, p.7-15].

Conclusions

The solution of tasks for ensuring the price and financial stability, which, as noted by some scientists, sometimes enters in conflict with each other, lies on a different plane, at least for countries with emerging markets. The main directions for development and implementation of the new monetary mechanism, which should provide an effective solution for problems with price and financial stability, should be the following:

1. The development and implementation of a clear long-term economic policy focused on the innovative development of the national economy;

2. The recognition of the need to develop and implement a unified state financial policy, part of which should be the monetary policy of the central bank. At the same time, not reducing the role and level of the central bank's independence in the whole process of its monetary policy formulation and implementation, the functions for a common financial policy development should be assigned to a specific government body, such as the Ministry of Economy or the Ministry of Finance;

3. The development of the coordination principles and mechanisms of the monetary, fiscal and debt policies should be established with a clear alignment of individual responsibilities for each public authority, as well as with precise terms and conditions of the measures that are going to be carried out;

4. The expansion of the range for the monetary and credit policy instruments, the development and implementation of the new monetary regime that takes account of the main development directions of both the monetary and credit policy of the central bank and the fiscal policy of the state;

5. The improvement of the institutional framework and the financial sector regulation instruments based on coordination of activities and strengthening the political, operational and financial independence of regulators and authorities responsible for the government financial policy formation.

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MONETARY POLICY REGIMES: FUNCTIONAL FRAMEWORK AND IMPLICATIONS

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Abstract

The contribution of this paper is the delineation of the concept of the "monetary regime", which implies specification of a numerical target that commits the central bank to achieve the primary goal of the monetary policy. We considered that the monetary policy regimes represent an attempt to develop a proper framework of the monetary reaction function based on the different theoretical approaches of monetary transmission channels, from the practical point of view (Barro R., 1995; McCallum B., et al. 1999). The dynamics of the targeted indicator may serve also as an early shock indicator and provide a better foundation for policy-makers decisions. In this paper we propose to investigate the fundamental basis of different monetary policy regimes, a greater emphasis being put on the functional mechanism of each regime and its effects.

Keywords: Central bank, monetary policy regimes, inflation targeting, monetary transmission channels.

JEL Classification: E31, E52, E58.

Introduction

Most central banks conduct monetary policy within some sort of monetary policy regime. Such a regime provides a structure for monetary policy decision-making. In addition to facilitating the decision-making itself, this structure enables the decisions to be communicated more easily to the public. The basic monetary regimes are: regime with an implicit nominal anchor, money targeting, exchange rate targeting and inflation targeting.

A regime with an implicit nominal anchor involves targeting a particular nominal variable adopted only internally within the central bank without it being announced explicitly. A prerequisite for successful functioning of this regime is high credibility of the central bank, which enables the desired changes in inflation or inflation expectations to be achieved without explicit targets.

The money targeting regime focuses on the growth rate of a chosen monetary aggregate. It is based on the finding that in the long term, price growth is affected by money supply growth. A problem, however, lies in the choice of an appropriate monetary aggregate to target. In an environment of financial innovation, market computerization and globalization, the relationship between monetary aggregates and the price level is becoming ever weaker. The central bank may also fail to manage the selected monetary aggregate with sufficient precision.

Exchange rate targeting regime - the central bank tries to ensure nominal exchange rate stability vis-à-vis the currency of a so-called anchor country via interest rate changes and direct foreign exchange interventions, thereby "importing" price stability from the country. Maintaining the exchange rate requires an appropriate economic policy mix ensuring a low inflation differential vis-à-vis the anchor country, a sufficient level of international reserves, and the maintaining of the country's competitiveness and overall credibility, including its institutional and legislative framework and political stability. One of the major disadvantages of the regime is the loss of monetary policy autonomy.

Inflation targeting regime - the central bank publicly pre-announces an inflation target (or a succession of targets) that it is determined to achieve. This involves active and direct shaping of inflation expectations. This regime's decision-making scheme involves the use of much more information than merely the exchange rate or monetary aggregates, covering the labor market,

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import prices, producer prices, the output gap, nominal and real interest rates, the nominal and real exchange rate, public budgets, etc.

Description of the problem

In recent years a growing consensus has emerged for price stability as the overriding, long-run goal of monetary policy. However, despite this consensus, the following question still remains: how should monetary policy is conducted to achieve the price stability goal?

A central feature of all of the monetary regimes is the use of a nominal anchor in some form, so first problem is, what role a nominal anchor plays in promoting price stability. What difference has four basic types of monetary policy regimes: 1) monetary policy with an implicit but not an explicit nominal anchor, 2) exchange-rate targeting, 3) monetary targeting, and 4) inflation targeting. The paper then concludes with an overall assessment of the different monetary regimes and draws some conclusions. The basic theme that comes out of this analysis is that the success of different monetary regimes depends on their ability to constrain discretionary policymaking so that long-run price stability is more likely to result.

A nominal anchor is a constraint on the value of domestic money, and in some form it is a necessary element in successful monetary policy regimes. Why is a nominal anchor needed? First, from a purely technical viewpoint, a nominal anchor provides conditions that make the price level uniquely determined, which is obviously necessary for price stability. Indeed, it helps promote price stability because it helps tie down inflation expectations directly through its constraint on the value of domestic money.

However, a nominal anchor can be thought of more broadly as a constraint on discretionary policy that helps weaken the time-inconsistency problem described by Kydland and Prescott (1977), Calvo (1978) and Barro and Gordon (1983) so that in the long run, price stability is a more likely to be achieved. The time-inconsistency problem arises because there are incentives for a policymaker to pursue short-run objectives even though the result is poor long-run outcomes which result from forward-looking behavior on the part of economic agents. Expansionary monetary policy will produce higher growth and employment in the short-run, and so policymakers will be tempted to pursue this policy even though it will not produce higher growth and employment in the long-run because economic agents adjust their wage and price expectations upward to reflect the expansionary policy. Unfortunately, however, the expansionary monetary policy will lead to higher inflation in the long-run, with its negative consequences for the economy.

Targeting the exchange rate is a monetary policy regime with a long history. It can take the form of fixing the value of the domestic currency to a commodity such as gold, the key feature of the gold standard. More recently, fixed exchange-rate regimes have involved fixing the value of the domestic currency to that of a large, low-inflation country. As another alternative, instead of fixing the value of the currency to that of the low-inflation anchor country, which implies that the inflation rate will eventually gravitate to that of the anchor country, some countries adopt a crawling target or peg in which its currency is allowed to depreciate at a steady rate so that its inflation can be higher than that of the anchor country.

In many countries, exchange-rate targeting is not an option because the country (or bloc of countries) is too large or has no obvious country whose currency can serve as the nominal anchor. Exchange-rate targeting is therefore clearly not an option for the United States, Japan or the European Monetary Union. Thus these countries, by default, must look to other monetary policy regimes, one of which is monetary targeting.

A major advantage of monetary targeting over exchange-rate targeting is that it enables a central bank to adjust its monetary policy to cope with domestic considerations. It enables the central bank to choose goals for inflation that may differ from those of other countries and allows some response to output fluctuations. Also, like an exchange-rate target, information on whether the central bank is achieving its target is known almost immediately - announced figures for monetary aggregates are typically reported periodically with very short time-lags, within a couple of weeks.

Thus, monetary targets can send almost immediate signals to both the public and markets about the stance of monetary policy and the intentions of the policymakers to keep inflation in check. These signals then can help fix inflation expectations and produce less inflation. Monetary targets also have the advantage of being able to promote almost immediate accountability for monetary

policy to keep inflation low and so help constrain the monetary policymaker from falling into the time-inconsistency trap.

Given the breakdown of the relationship between monetary aggregates and goal variables such as inflation, many countries have recently adopted inflation targeting as their monetary policy regime. New Zealand was the first country to formally adopt inflation targeting in 1990, with Canada following in 1991, the United Kingdom in 1992, Sweden in 1993, Finland in 1993, Australia in 1994 and Spain in 1994. Israel and Chile have also adopted a form of inflation targeting.

Inflation targeting involves several elements: 1) public announcement of medium-term numerical targets for inflation; 2) an institutional commitment to price stability as the primary, long run goal of monetary policy and to achievement of the inflation goal; 3) an information inclusive strategy, with a reduced role for intermediate targets such as money growth; 4) increased transparency of the monetary policy strategy through communication with the public and the markets about the plans and objectives of monetary policymakers; and 5) increased accountability of the central bank for attaining its inflation objectives.

Inflation targeting has several important advantages. In contrast to exchange-rate targeting, but like monetary targeting, inflation targeting enables monetary policy to focus on domestic considerations and to respond to shocks to the domestic economy. Inflation targeting also has the advantage that velocity shocks are largely irrelevant because the monetary policy strategy no longer relies on a stable money-inflation relationship. Indeed, an inflation target allows the monetary authorities to use all available information, and not just one variable, to determine the best settings for monetary policy.

Inflation targeting, like exchange-rate targeting, also has the key advantage that it is readily understood by the public and is thus highly transparent. Monetary targets are less likely to be easily understood by the public than inflation targets, and if the relationship between monetary aggregates and the inflation goal variable is subject to unpredictable shifts, as has occurred in many countries including a long-standing monetary targeter such as Switzerland, then monetary targets lose their transparency because they are no longer able to accurately signal the stance of monetary policy.

Methodology and data sources

Today, most governments, and certainly most central bankers, would subscribe to the view that the role of monetary policy can be reduced to three core functions. The first is to control the average level of prices, in other words to stabilize the value of the domestic currency. Why should this matter when sustainable and inclusive long-run growth requires getting relative prices right which is fundamentally a general equilibrium problem over which monetary policy has little or no leverage? The answer is that while classical monetary neutrality may prevail in the long run, it clearly does not in the short- or medium-run, either in terms of the level of inflation or its volatility. Nor is this non-neutrality of money a positive factor in supporting sustainable economic growth. High and volatile inflation obscures relative price signals, distorting resource allocation; it creates fiscal effects, through the tax system and seigniorage; and generates powerful real and distributional effects from asset markets in all but the most perfectly indexed environments. This non-neutrality clearly influences the short and medium-term path of the economy but, to the extent inflation and inflation volatility impacts on fiscal choices, financial sector development and domestic and foreign investment behavior, it also feeds back adversely onto long-run growth. As a result, the sine qua non of any monetary framework therefore becomes the delivery of low and stable inflation. The prevailing consensus sees this function as being best pursued through some form of policy rule designed to minimize or eliminate the incentives of the monetary authorities to operate in a time-inconsistent manner.

The second function is to moderate fluctuations in the path of domestic output relative to its trend rate of growth, by judicious tightening or loosening the stance of monetary policy as circumstances dictate. This is fundamentally a discretionary function and hence to the extent that the output stabilization objectives may, of course, run counter to inflation stabilization objectives and vice versa, this potentially sets up a tension between rules and discretion at the heart of monetary policy. It is this tension that a coherent monetary framework must resolve, by recognizing the relative weights placed on these apparently competing objectives and prioritizing them accordingly. As I shall discuss below, contemporary monetary theory sees the reconciliation of these objectives emerging from a system of “constrained discretion such as embodied in an inflation targeting

framework, where the institutional constraints defining the credible public commitment to an inflation target creates the space for the authorities to pursue output stabilization.

The final function of monetary policy is less direct. It is to support the smooth functioning of the payments system and the financial system more generally so as to promote the efficient market-based allocation of credit and pricing of risk in support of efficient investment and growth. As above, this objective may not necessarily be consistent with price and output stabilization and, again, a coherent monetary framework will seek to reconcile and prioritize these competing objectives.

To this list some may add a fourth function: to ensure that monetary policy choices are not themselves sources of macroeconomic instability. A monetary framework defines the institutional arrangements under which monetary policy is made and the constraints under which monetary policy makers operate. Most frameworks are built around three pillars. The first is the institutional structure and mandate of the central bank which defines its relationship with government and shapes its formal obligations with respect to its principal functions as regulator of the financial sector, banker to the government and monopoly issuer of domestic money.

The second pillar articulates the monetary policy objectives, narrowly defined, and the instruments and operating procedures employed to meet these objectives. Essentially the focus is on the international and domestic purchasing power of the domestic currency, and how concerns about the value of the currency are reconciled with other objectives such as output stabilization and (nominal and real) exchange rate stability. The third pillar defines the central bank's role in the regulation of the financial sector and embraces concerns about precautionary risk management, ownership and competition policy and, in the case of most emerging markets, the promotion of innovation and financial market development.

Another problem of monetary policy consists in choice of monetary regime and nominal anchor. All contemporary monetary regimes can be thought of as "inflation targeting" in the strict sense that a central - if not the dominant - objective of monetary policy is to establish a credible anchor for domestic prices. It makes sense, therefore, to characterize different regimes in terms of their choice of nominal anchor since this, in turn, will fundamentally shape the entire framework. The choice of anchor is not an un-constrained one; rather it has implications for how the authorities address the other concerns competing for their attention. The fundamental nature of the constraint is encapsulated by the notion of the "impossible trinity" or the "trilemma" which states that beyond the short-run no country can simultaneously maintain an open capital account, target the exchange rate and pursue an independent monetary policy. One of the three must be abandoned even though each is desirable in its own right: open capital accounts to the extent they support the efficient global allocation capital to high-return investment opportunities; exchange rate targeting to support trade and sustain a stable external value of the currency; and an independent monetary policy to pursue domestic output stabilization objectives.

Monetary frameworks can thus be distinguished in terms of the degree of discretion over the choice of anchor and the degree of commitment to the chosen anchor. In terms of discretion we may distinguish between, on the one hand, those countries where domestic currencies are institutionally tied to an anchor currency, through a monetary union or a currency board and, on the other, those whose choice of anchor is determined only by domestic policy actions.

Domestic anchors are dominated by three groupings: those countries adopting conventional money-based pegs; those pursuing full-fledged inflation targeting (FFIT); and a final, substantial, group whose regime is described as "hybrid" or "eclectic", indicating that the country pursues a strategy which cannot be classified according to a well-defined nominal anchor, for example because the country articulates a money-based target but also seeks to manage the path of the exchange rate or an employment or output target. For some countries in this group, such as the Federal Reserve Board of the US, the European Central Bank, Japan and Switzerland, the regime already commands substantial credibility and functions with a high degree of instrument independence and transparency. Many central banks adopted inflation targeting as a pragmatic response to the failure of other monetary policy regimes, rather than in response to new economic thinking. Theory and practice have developed together over the past couple of decades, and there is now a large body of academic literature on inflation targeting. To achieve price stability, monetary policy requires a nominal anchor. By nominal anchor, we mean fixing a nominal variable in order to tie down the price level in the long run.

Historically, the nominal anchor used by central banks was the gold standard or pegging the domestic currency to another strong currency. The collapse of the Bretton Woods system of fixed exchange rates in the 1970s, combined with high inflation, led to a search for new anchors, notably the money supply. During the 1980s, monetarism was the prevailing monetary policy orthodoxy, as central banks attempted to control prices by controlling the supply of money in the economy. This depended on the existence of a stable relationship between nominal expenditure and the quantity of money; known as the Quantity Theory of Money. Milton Friedman elaborated on the quantity theory and argued that the demand for money depended predictably on a number of macroeconomic variables. Thus central banks could control spending and inflation by altering the supply of money in the economy. Friedman's fixed money rule implied that central banks should calculate the money supply based on its relationship to macroeconomic variables to target a specific rate of inflation.

Under this rule, there is little discretion for the central bank to use its judgement in assessing the supply of money needed in the economy. In practice, successful monetary targeters actively took account of the variability in the money supply and economic relationships. Bernanke argues that inflation targeting owes much to the pragmatic way that the Bundesbank conducted monetary policy in the 1980s: the Bundesbank indirectly targeted inflation, using money growth as a quantitative indicator to aid in the calibration of its policy. Notably when conflicts arose between its money growth targets and inflation targets, the Bundesbank generally chose to give greater weight to its inflation targets [2]. Ultimately monetary targeting failed in many countries as the demand for money function was not stable. This instability resulted typically from deregulation plus financial innovation; new types of money-like assets together with disintermediation from banking system. As John Crow, former Governor of the Bank of Canada famously commented: "we did not abandon monetary aggregates, they abandoned us". The failure of money targeting in the mid-1980s and the collapse of fixed exchange rate pegs in the early 1990s was followed by the emergence of inflation targeting with floating exchange rates as the new monetary policy framework of choice. The framework was consistent with the main tenets of the prevailing academic consensus of the time about what monetary policy can and cannot do. What does monetary theory tell us? First, as both Friedman and Phelps showed, a permanently higher rate of inflation does not lead to higher growth and employment. Acceptance of this concept supported a move away from monetary policy as tool of short-term demand management, or fine tuning, to a focus on the medium-term goal of price stability, which lies at the heart of inflation targeting. Second, there has been an increasing recognition of the benefits of low and stable inflation - and equally an awareness of the costs of inflation; low inflation is a social good. In inflation-targeting regimes, price stability is the primary objective for central banks. Third, the literature increasingly stressed the importance of inflation expectations in monetary policy [8]. The effect of monetary policy decisions on private sector expectations became an important consideration for policymakers. Against this evolving consensus among economists, inflation targeting was seen as an effective way of anchoring inflation expectations.

Most definitions of inflation targeting include the requirement that price stability is the main goal of monetary policy. This is usually enshrined in the central bank law. In many cases the central bank law also states that, as a subsidiary objective, the central bank will support economic prosperity and welfare more broadly. The individual country tables show considerable diversity in the precise legal mandates of inflation targeters. Australia has a dual mandate for price stability and employment, for example [7], while in Canada the main role of the central bank is to promote the economic and financial welfare of Canada. In the wake of the financial crisis that started in 2007, the legal mandates of several central banks, including the Bank of England, have been expanded to include a financial stability remit [6]. Most inflation-targeting central banks have statutory independence. The literature on central bank independence often distinguishes between 'goal independence' ie the central bank has autonomy in setting the objective of monetary policy, and 'instrument independence', ie the central bank conducts monetary policy to achieve the inflation objective independent of government influence. In practice the distinction is less clear-cut. The ultimate goal of monetary policy, ie price stability, is, as we have seen, usually enshrined in law. 'Goal independence' then becomes a second-order question of defining 'price stability' ie setting the inflation target.

When inflation is not at its steady state, as was the case in several emerging market countries when they adopted inflation targeting, setting the inflation target and determining the path and pace

of disinflation are clearly more substantial policy questions. The ability to set the inflation target was seen as an essential part of central bank independence. On the other hand, it is clearly beneficial for the government to make an explicit commitment to the inflation target, which is more likely when the target is jointly determined, in order to promote better co-ordination - or at least no conflict - between fiscal and monetary policy. And government involvement in setting the target adds democratic legitimacy to the policy, which can help command public support.

The inflation targets of industrialized countries all lay between 1% and 3% (year-on-year increase in inflation). This reflects the consensus interpretation of the general range of inflation that is consistent with price stability in these countries. It would be difficult therefore for governments in these countries to adopt a higher inflation target as this would undermine credibility. So, even where the target is set by the government alone, in practice, in industrialized countries, the government is highly constrained in setting an operational definition of price stability.

It would appear de jure that central banks in developing and emerging markets have a greater degree of independence: mainly in Latin American countries, the target is determined solely by the central bank, while in the other cases the target is jointly determined [14]. De facto, the picture is more complex. In Colombia and Guatemala, for example, the Minister of Finance sits on the decision-making board of the central bank, so there is some government influence on setting the target.

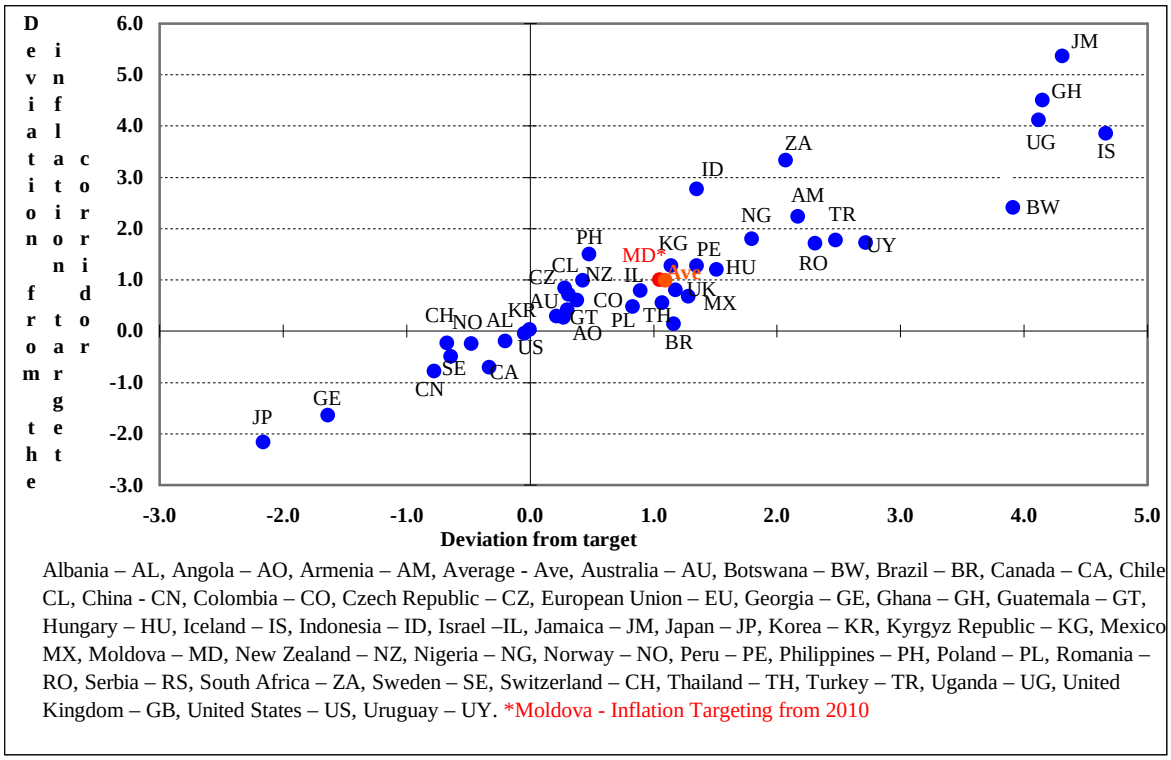
Results obtained

Empirical evidence on the performance of inflation targeting is not unanimous but broadly supportive of the effectiveness of the framework in delivering low inflation and anchoring inflation expectations in both industrialized and emerging market economies. However there is an important point to be made about endogeneity. Many countries that adopted inflation targeting did so as part of a wider process of political and economic reform. Often this involved moves to strengthen the institutional structure of policymaking, for example giving statutory independence to the central bank. In some countries, the adoption of inflation targeting as a new monetary policy framework was also accompanied by better fiscal policies (notably in Latin American countries). The adoption of inflation targeting has often been accompanied by a building up of technical capacity within the central bank, and an improvement in the quality of macroeconomic data [10]. As inflation targeting depends to a large extent on the interest rate channel to transmit monetary policy, some emerging market economies also took steps to strengthen and develop the financial sector. It seems likely therefore that the improvement in monetary policy outcomes after the adoption of inflation targeting reflects improved economic policymaking in a broader sense.

Figure 1 shows the implementation of inflation targeting for the 42 countries operating an inflation-targeting regime from 2008 to 2013.

The set of inflation-targeting central banks is very heterogeneous, including industrialized, developing and emerging market countries from every continent. The first country to adopt inflation targeting was New Zealand in December 1989, and the most recent Serbia, in 2009 and Moldova from 2010 [17]. The only central banks to have exited from inflation targeting are Finland, Spain and Slovakia, in each case when they adopted the euro. Some countries adopted inflation targeting while they were transition economies; the Czech Republic, Hungary Poland and latterly Armenia. Several emerging market countries adopted inflation targeting in the wake of the 1997 crisis, which forced a number of currencies off their fixed exchange rate pegs.

As the Figure 1 shows, most countries is in the spread of one percentage point that is a good indicator, but countries such as Botswana, Ghana, Iceland, Jamaica and Uruguay has some problems with inflation targeting. There are several reasons: - macroeconomic problems of each of these countries; - wrong target was selected; or - incorrect and untimely implementation of monetary policy instruments capable to influencing positively on the ultimate goal of inflation targeting. On the other side, Japan and Georgia recorded negative deviations from the predicted corridor of inflation target and these countries must also take measures to fulfill obligations of inflation targets.



Albania – AL, Angola – AO, Armenia – AM, Average - Ave, Australia – AU, Botswana – BW, Brazil – BR, Canada – CA, Chile – CL, China - CN, Colombia – CO, Czech Republic – CZ, European Union – EU, Georgia – GE, Ghana – GH, Guatemala – GT, Hungary – HU, Iceland – IS, Indonesia – ID, Israel –IL, Jamaica – JM, Japan – JP, Korea – KR, Kyrgyz Republic – KG, Mexico – MX, Moldova – MD, New Zealand – NZ, Nigeria – NG, Norway – NO, Peru – PE, Philippines – PH, Poland – PL, Romania – RO, Serbia – RS, South Africa – ZA, Sweden – SE, Switzerland – CH, Thailand – TH, Turkey – TR, Uganda – UG, United Kingdom – GB, United States – US, Uruguay – UY. *Moldova - Inflation Targeting from 2010

Figure 1. Implementation of inflation targeting regime in 42 countries, 2008-2013

After analyzing of CPI levels and Inflation Targets in 2008-2013 in 42 countries which adopt monetary regimes of inflation targeting, it can be concluded that the deviation from the CPI and Inflation Targets is lowest in most developed countries. Also on Figure 2 it can be seen that over time, the variance of the data is reduced, that can be a consequence of a better understanding of the processes of implementation of inflation targeting, both at the level of individual countries and at the global level.

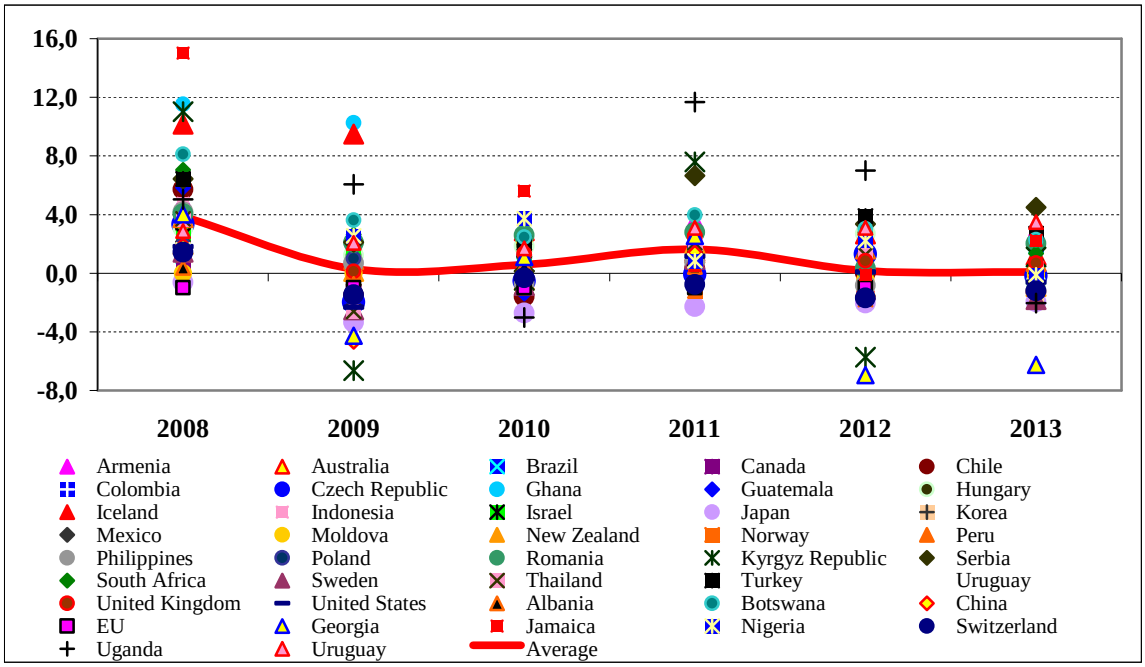


Figure 2. The difference between CPI and Inflation Targets in 42 countries, 2008-2013

Inflation targeting may not be the optimal monetary policy regime for bringing inflation down, but it has proved effective at anchoring inflation expectations around the target, and so keeping inflation low and stable. The main reason why low inflation is often regarded as a 'precondition' for inflation targeting is the difficulty of forecasting inflation, and hitting an inflation target, in conditions of high and volatile inflation. The central bank risks losing credibility from target misses in such

circumstances. This explains why many central banks waited until inflation was under control before formally introducing inflation targeting. However the experience of Israel and Guatemala shows that inflation targeting has successfully been used as a disinflationary strategy.

Conclusions

In the past ten years, a substantial number of industrial and emerging market countries have moved decisively in favour of an inflation targeting monetary framework. The intellectual case is compelling and the evidence – at least that covering the first decade of experience with IT regimes – is persuasive. There is much common ground among inflation targeters, but nonetheless individual frameworks reflect local economic, political and cultural factors.

The increased volatility in inflation since 2007 has led to some debate on the best target measure of inflation. There have been calls for the targets to explicitly include asset prices and particularly house prices. Others have argued in favour of targeting 'domestically generated inflation', in order to abstract from the headwinds and tailwinds of imported inflation. The fear of deflation led some to propose increasing the level of the target in order to avoid the zero bound. Others have suggested that, faced with below target inflation in the short run, the inflation target should be specified as an average over several years in order to anchor inflation expectations. Some have argued that this makes more sense with a price level target, and that a price level target would provide a stronger anchor for positive inflation expectations. On the other hand, there are concerns that a price level target would be less effective in coping with persistent terms of trade stocks.

In 2009 and 2010, several central banks had reduced interest rates close to zero. Interest rates cannot usually be negative, so as further easing of monetary policy was required in order to achieve the inflation target, central banks used "unconventional monetary policy". This usually involves measures to increase the quantity of money or credit in the economy to provide an additional stimulus to nominal spending in order to meet the inflation target. In these operations, the central bank buys public and private sector assets using central bank money.

Some inflation-targeting central banks pursued unconventional monetary policies. The Bank of England began a programme of asset purchases in March 2009, and the Bank of Canada published a framework for unconventional monetary policy under inflation targeting in their April 2009 Monetary Report, under which it made a conditional commitment to keep policy rates at the effective lower band until the second quarter of 2010. One benefit of the inflation-targeting framework is that monetary policy decisions are clearly linked to the inflation target. The inflation forecast provides a guide for the extent of quantitative easing that may be necessary and also the appropriate time to exit. The numerical target also provides a strong anchor for inflation expectations.

Inflation-targeting frameworks have also been adapted to meet with new challenges. It is likely that further changes will occur as central banks seek to combine their financial stability objectives with the monetary policy objectives.

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THE ACTIVITY OF INSTITUTIONAL INVESTORS ON THE SECURITIES MARKET OF THE REPUBLIC OF MOLDOVA

Victoria IORDACHI[54]

Abstract

This article includes the analysis of the activity of institutional investors on the securities market of the Republic of Moldova, particularly transactions performed by the banking and the insurance sectors. The activity of investment funds is not analyzed, as practically there are no transactions performed by these institutions on the capital market. Also, there are stated main problems and barriers faced by institutional investors on the domestic capital market.

Keywords: institutional investor, bank sector, insurance sector, stock exchange capitalization, securities market, state securities, primary dealers, joint-stock company, capital concentration.

Jel classification: G14, G22, G 23

Introduction

The activity of institutional investors on the capital market of Moldova is limited to two main sectors: banking and insurance sectors. Another important participant in international practice relates to the activity of investment funds, which are considered an important investment pool within the process of capital concentration on the capital market, but in Republic of Moldova, in conditions of a less developed capital market, practically no important activity of these institutions is registered, as all of them, at present, pass through the process of forced or benevolent liquidation.

Activity of bank sector on the securities market of Moldova

According to data presented by National Bank of Moldova at situation from 31.07.2013, 14 banks possess the license of rendering bank activity issued by central bank authority, out of which ***11 banks also possess the license of professional participant on the capital market as dealer with additional rights of broker, underwriting and consulting,*** which is issued by the National Commission of Financial Market. So, this license gives the banks the right and possibility to activate on the domestic securities market.

The most active role of banks on the securities market is exercised through intermediation on the capital market and through investment activity.

Analyzing the volumes of transactions performed by the members of the Moldova Stock Exchange for their whole activity[55], a great weight within transactions is held by banks on the secondary market. In 2012 banks owed a 48,63% participation part in the whole volume of transactions at stock exchange made by dealers or brokers, in amount of 755,6 million lei. At the same time, it is important to mention “Mobiasbanca – Groupe Societe Generale” JSC that uniquely owed 24,67%[56].

In Republic of Moldova, banks are legally registered as joint-stock companies, and their shares are constantly traded on the Moldova Stock Exchange. According to data provided by Stock Exchange of Moldova, the Ist level of quotation cumulated listing of 8 issuers out of which 7 were banks, while on the OTC market out of 951 issuers – 6 were banks.

Another important indicator that shows us an active participation of banks on the secondary market is stock exchange capitalization. During the whole activity of the Moldova Stock Exchange, the total volume of stock exchange capitalization within the top 10 companies is 5,3632 billion lei (See Table 1), or 47,6% of the total. In this rating it is important to mention that 6 classes of shares belong to banks with the total volume of capitalization of 3,6141 billion lei, or 32,1% of the total volume of capitalization[57].

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[54] National Institute for Economic Research, Academy of Sciences of Moldova, Chişinău, Republic of Moldova
[55] Out of 20 members of the Moldova Stock Exchange, 11 members are commercial banks.
[56] Buletinul informativ nr. 1 (191) ianuarie 2013 “Bursa de Valori a Moldovei”
[57] Rating and estimation agency “Estimator-VM” JSC

Table 1

Rating of stock exchange capitalization during the whole activity of the Moldova Stock Exchange (at 31.07.2013)

Name of Company	Capitalization, lei	Name of Company	Capitalization, lei
1. CB "MOLDOVA-AGROINDBANK" JSC	1 084 317 154	6. CB "MOLDINDCONBANK" JSC	447 101 460
2. CB "MOBIASBANCA-Groupe Societe Generale" JSC	800 000 000	7. MC "MOLDOVAGAZ" JSC	373 214 240
3. CB "VICTORIABANK" JSC	675 002 457	8. BC "BANCA DE ECONOMII" SA	327 694 696
4. MC "EFES VITANTA MOLDOVA BREWERY"JSC	595 170 984	9. "SUDZUCKER-MOLDOVA" MC, JSC	305 666 480
5. "LAFARGE CIMENT" JSC	474 672 288	10. BC "ENERGBANK" JSC	280 000 000

Source: Rating and estimation Agency "Estimator-VM" JSC

The total volume of capitalization of the bank system (13 banks) registers 6,0154 billion lei, or about 53,38% of the total volume of capitalization.

According to data provided by stock exchange trading statistics, from 2008 till the II-nd quarter of 2013, there have been traded on the stock exchange market shares of 9 (from 13) banks in value of 735,74 million lei, representing nearly 27,17% of the total volume of stock exchange transactions registered on the stock exchange for this period in amount of 2708,41 million lei. As an example, shares of BC "Moldova-Agroindbank" S.A. have been traded in value of 432,12 million lei, representing nearly 15,95% of the total volume of transactions, or 58,73% of the total volume of transactions with banks' shares.

Also, during this period, as a result of financial reports of banks, 10 of 13 banks did 12 closed additional issues of shares in volume of about 1574,24 million lei.

But these issues were forced to be performed by legislation in order to conform to new requirements of capital adequacy and thus to increase the level of I-st grade capital from 32 million lei in 2002 till 100 million lei in 208 and 200 million lei in 2012. ***So, these issues did not have as objective to attract new investors, but to increase minimal necessary capital required by legislation in bank supervision. Banks even did not try to attract foreign capital, they operated in base of resources of existent shareholders. All these issues passes through closed procedure, and shareholders brought additional capital resources, or reinvested through distribution of new shares on the account of banks earnings.***

Another important role of banks relate to investing on the capital market as primary dealers with transactions with state securities. Only 11 banks from 14 are present on the OTC market to participate within auctions of selling state securities organized by the Ministry of Finance. The main reason to participate within transactions with state securities, is the possibility to manage liquidities and to invest by banks.

The presence of banks as primary dealers with state securities on the capital market is regulated by Regulation on placement and repurchase of state securities in form of account writing, according to which banks are obliged to participate at each auction and:

- To purchase 2% of the average quarterly volume offered by the Ministry of Finances during the 4 precedent quarters – banks with the level of assets exceeding 1000,0 million lei;
- To participate at minimum 50% of the total number of auctions of selling state securities and purchase 1% of the average quarterly volume offered by Ministry of Finances during the 4 preceding quarters – banks with the level of assets that do not exceed 1000,0 million lei.

The value of transactions with state securities registered on the secondary market in 2012 increased 3,7 times in comparison to 2011, reaching 98,1 million lei, as a result of increasing the number and value of transactions concluded between banks and clients (54,6% of the total), and also between the clients of the same and unique primary dealer (1,2% of the total)[58].

[58] The most commonly traded state securities were with maturity below one year (28-91 days), representing 71% of the total volume of transactions with state securities.

During 2012, 12 primary dealers activated on the state security market, which according to agreements on accomplishing primary dealer functions on non-materialized state securities market concluded with NBM, ***contributed towards the placement of state securities on the primary market and assurance of liquidity on the secondary market.***

Figure 1 shows the structure of purchases of state securities by primary dealers, banks and non-bank investors. Thus, in 2012, 90,5% (6321,5 million lei) securities were purchased by primary dealers on own account, while the volume of non-bank investors registering a diminishing trend as number of purchasing agreements and volume.

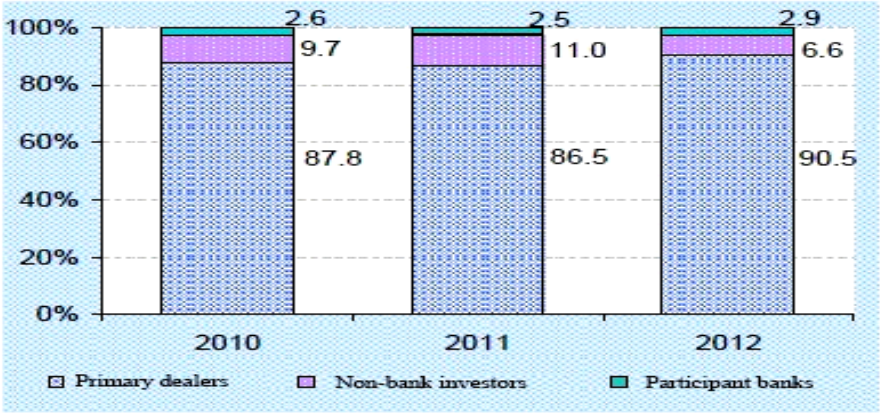

Figure 1. Structure of purchases of state securities within auctions on the primary market (per participants)

Source: Report of 2012, National Bank of Moldova, p. 68

In 2012 the activity of primary dealers on state securities considerably intensified, namely in performing transactions of bank-client category, registering a volume of 53,6 million lei (54,6% of the total volume of transactions with state securities), in comparison to 4,1 million lei (18,5%) in 2011 (see Figure 2).

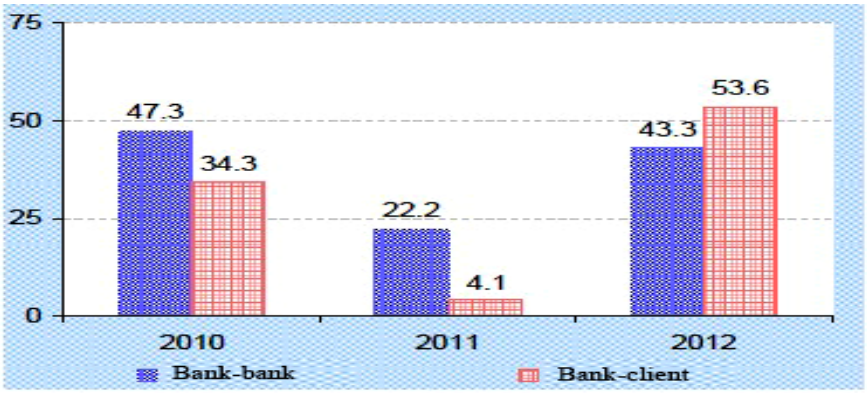

Figure 2. Selling-purchasing transactions made by primary dealers on the secondary market (million lei)

Source: Report of 2012, National Bank of Moldova, p. 68

In 2012, there have been produced the following changes in the structure of state securities registered in the System of Accounts Registering (see Figure 3):

- Increasing the weight of banks (from 55,4% in 2011 till 62,9% in 2012) as a result of increasing the volume of purchases of state securities on the primary market;
- Decreasing the weight of NBM (from 37% till 33%) determined by decreasing trend of interest rates on state securities issued and delivered as a result of converting loans granted previously tot state, as well as repurchasing by state securities by the Ministry of Finances from the portfolio of National Bank of Moldova in volume of 150,0 million lei;
- Diminishing the weight of non-bank investors (from 7,6% till 4,1%) as a result of *preferences of population for placements into higher income rendering state securities.*

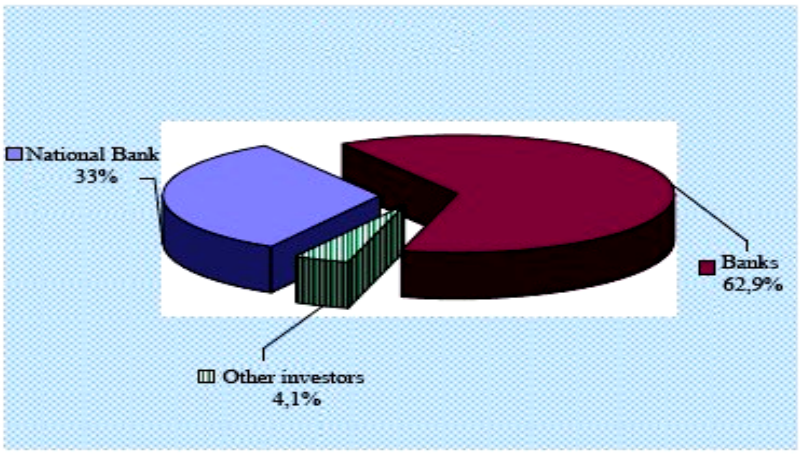

Figure 3. Structure of state securities in circulation according to owners, at 31.12.2012

Source: Report of 2012, National Bank of Moldova, p. 70

The certificates of National Bank of Moldova were registered in the System of Accounts Registering of NBM in the portfolio of licensed banks in amount of 3719,0 million lei, while 25,0 million lei – in portfolios of other investors.

Activity of insurance companies on the securities market of Moldova

The number of insurance companies during 2002-2012 period decreased from 49 till 18 companies, while the number of insurance/reinsurance brokers reached 76 companies in 2012 (from 32 companies that started their activity in 2008).

The same as previous years***, insurance market is characterized by a high level of concentration.*** Thus, 5 insurance companies subscribed 835,2 million lei (76,7% of the total). These companies are:

- "Moldasig" JSC (30,7% of the total);
- "Asito" JSC (15,26%);
- "Moldcargo" JSC (12%);
- "GRAWE CARAT ASIGURĂRI" JSC (10,9%);
- "Donaris-Group" (7,82%).

Table 2 presents the list of insurance companies with foreign capital, out of which we find 3 companies that were mentioned earlier as the ones that have subscribed the highest volume of premiums: "Asito" JSC, "GRAWE CARAT ASIGURĂRI" JSC and "Donaris-Group". This could indicate us ***a strong relationship between companies' efficiency of activity and foreign participation in capital.***

Table 2

List of insurance companies with foreign capital, 2012

Nr.	Insurance companies	Origin country of foreign investor	Social capital, mil. lei	Foreign capital, in social capital, mil. lei	Stake of foreign capital in social capital
1	"ASITO" S.A.	Great Britain	46,5	22,5	48,4
2	"DONARIS – GROUP" S.A.	Liechtenstein	39,1	36,7	93,9
3	"EXIM – ASINT" S.A.	Holland, Italy, Israel	15,0	14,8	98,7
4	"GRAWE CARAT ASIGURĂRI" S.A.	Austria, Romania, Russia	57,4	56,8	99,0
5	"TRANSELIT" S.R.L.	Great Britain	15,0	0,4	2,7
6	"VICTORIA ASIGURĂRI" S.R.L.	Holland	15,0	12,3	82,0
	Total 6 companies		**188,0**	**143,5**	**x**
	Total on the market		**561,2**	**143,5**	**25,6**

Source: National Commission of Financial Market, Annual Report 2012, NCFM activity and functioning of non-bank financial market

A good indicator on the activity of insurance companies is investment policy of accumulated resources. In order to cover risks assumed through insurance and reinsurance contracts, as well as to guarantee the norms of liquidity and solvency, insurance companies should invest carefully into some types of assets that are allowed to represent insurance reserves and one third of minimal solvency margin, respecting dispersion criteria according to norms stipulated in Regulation on solvency margins and liquidity coefficient of insurance (reinsurance) companies.

Analyzing the structure of insurance reserves, the great part of accumulated funds by insurance companies is preferred to be placed into bank deposits (35,2%) and land and constructions (20,6%)[59].

Unfortunately, we cannot attest an active participation of insurance companies on domestic capital market, as the weight of placing reserves into transactions with securities represents only 15,8%, out of which placements into:

- State securities issued by Government of Republic of Moldova or other state authority – 11,7% of the total, or 106,3 million lei;
- Corporate securities traded on a national stock exchange – 4,1% of the total, or 37,1 million lei.

In 2012 there were no investments in state securities issued by other countries, or international financial organizations.

At the same time, insurance companies traded securities on foreign trading platforms in value of 9,2 million lei (1,0% of the total volume) in 2012.

Table 3 presents evolution of placements in assets by insurance companies during 2008-2012.

If we compare evolution of placements into securities by insurance companies, it can be stated a not uniform situation. For example, the weight of investment on domestic capital market represented 23,9% in 2011, being higher in comparison to 2012, due to an active investing into state securities – 18,9% (142,0 million lei), and transactions with corporate securities on the Moldova Stock Exchange – 5,9% (46,4 million lei).

Out of insurance companies that did investments with securities in 2012, the following ones can be mentioned:

1. State securities issued by Government of Republic of Moldova or other state authority:

- "Grave Carat Asigurari" JSC – 9,4 million lei;
- "Donaris-Group" JSC – 6,0 million leil
- "Victoria Asigurari" JSC – 3,4 million lei;
- "Auto-Siguranta" JSC – 2,5 million lei;

Table 3

Structure of assets allowed for investments by insurance companies: evolution during 2009-2012

Indicators	2009		2010		2011		2012	
	mil. lei	%	mil. lei	%	mil. lei	%	mil. lei	%
Securities	34,3	7,1	68,4	13,3	203,2	26,0	152,8	16,9
Bank deposits	276,5	57,2	249,0	48,3	184,8	23,6	317,8	35,2
Liquidities on hand	41,8	8,6	49,0	9,5	74,7	9,5	61,0	6,8
Land and constructions	94,9	19,6	106,9	20,7	160,0	20,5	185,8	20,6
Claims from clients	36,2	7,5	36,6	7,1	44,4	5,7	53,9	6,0
Deposits at transferring comp.	-	-	5,7	1,1	-	-	-	-
Weight of reassurer	-	-	-	-	115,1	14,7	130,4	14,5
Total	487,5	100	515,6	100	782,2	100	901,7	100

Source: National Commission of Financial Market, Annual Report 2012, NCFM activity and functioning of non-bank financial market

[59] According to data provided by National Commission of Financial Market, Annual Report 2012, NCFM activity and functioning of non-bank financial market

2. Corporate securities traded on a national stock exchange:
"Asito" JSC – 34,6 million lei;
"Euroasig" JSC – 2,4 million lei;
"Victoria Asigurari" JSC – 11 thousand lei.

Also, data presented on investments with securities during the last years, attest the participation, in major part, of insurance companies with foreign participation in social capital, meaning that only these companies implement investment policy in securities, thus, being able to afford this type of placement, due to the highest level of reserves accumulation and revenues receiving from activity rendered.

Conclusions

Capital market from Republic of Moldova has not escaped out of incipient phase and does not offer population and real sector sufficient instruments of financial intermediation. There can be mentioned the following statements that conclude the poor development of domestic capital market:

- ***on the domestic capital market there are no active institutional investors;***
- capital market infrastructure ***is poorly activating and does not correspond to standards of European capital market model***;
- ***a weak development of material basis on the domestic capital market as investments are not sufficient for the creation of the market material basis and its subsystems of insurance;***
- ***lack of financial instruments,*** as on the stock exchange market only stocks are traded, while the issue of corporate bonds is limited. Public issues of securities through public auctions have an episodic nature. Thus, state securities are not used to finance investment projects of national importance and are missing on the secondary market. Also, collective investment institutions also are missing;
- few profitable securities that could bring profits to investors in form of dividends or from speculative transactions;
- the major shareholders in companies from the real sector are primarily directed towards consolidating their controlling stake.
- even the investment risk is considered to be zero for state securities, on the Moldovan capital market only banks are investing in these tools, while other investors interesting in placing resources into state securities lack.
- practically all issues of shares on the Moldovan capital market are closed and limited to a restrained circle of persons, being performed outside the stock exchange, thus, limiting the participation of other potential investors;
- the real sector of economy is poorly developed, few companies from real sector are listed on the stock exchange, while the major part is represented by shares of commercial banks.

A financial system characterized by active presence of institutional investors and extensive capital market financing is more stable than a bank-based one. Institutional investors, having good information and low transactions costs, provide liquidities to the capital market, adjust asset prices to fundamentals and dampen price volatility.

In Republic of Moldova, there are no active institutional investors on the capital market, besides banks, and still the activity of banks is reduced only to the consolidation of shares' packages of existent shareholders, thus, the capital market remaining outside the interest of strategic investors. But, considering the actual development conditions of the domestic capital market, there is a crucial need to reanimate the activity of institutional investors in our country.

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IS SUSTAINABLE BANKING A SOLUTION?

Ionuţ MIRCEA[60]

Abstract

The financial crisis highlighted the negative impact of a damaged banking system on the real economy. In this context, there is a real need for the improvement of the banking system quality, to ensure support for the real economy particularly, this being now the focus of the banking regulation. The question is that a back-to-basics approach that relies on traditional measures of capital strength and liquidity and on traditional products can replace the sophisticated model used by the Global Systemically Important Financial Institutions (GSIFIs).

So the question is can sustainable banks which are focused on “people, planet, prosperity”, grounded in communities, serving the real economy, long-term relationships with clients and a direct understanding of their economic activities and the risks involved cope better with a changing environment, innovation and globalisation to ensure a sound banking system?

Keywords: Banking system, Risks, Financial crisis

JEL Classification: E 58, E 59, E 60

1. Introduction

The last financial crisis highlighted that authorities failed to proper regulate and supervise the financial sector, especially the complex and international spread operations performed by the *Global Systemically Important Financial Institutions (GSIFIs)* and by the shadow banking system. The crisis had many separate driving forces converging and interacting, but the GSIFIs are at the top, because they are dominating the interbank market, are active in derivatives trading, they are prime brokers and they are the most important player in the originate to distribute chains (securitizations).

Another key issue was the misconduct of businesses and the recklessness, associated with the *Global Systemically Important Financial Institutions (GSIFIs).*

The large banking groups played an important role in the *supply push* factor, being also responsible for the large part of the currency *carry trade* around the world (borrowing low rate interest currency and take short positions in currencies with higher interest rates).

GSIFIs determined the lowering of the lending standards and developed sophisticated products (some of them hiding the risk from the investors) in order to expand their non-core liabilities to finance their lending when access to core deposit funding did not keep pace with the growth of the lending.

Recent studies suggests that these financial institutions are no longer connected to the real economy since they are using only a minority of their assets to provide loans to their customers, while the rest is represented by the *available for trade* assets (large amounts of derivatives).

Most of these actions were considered to be unethical and based on short term profits expectations.

GSIFIs pose systemic risks to financial stability, since unlike smaller institutions, they cannot be easily wound down, because they are large and complex, operate internationally and play a role as backbones of the financial infrastructure. So these institutions are too important to fail or too big to fail, leading to government subsidies.

On the opposite side there are sustainable banks, which are focused on people, planet and prosperity. The products and services of these banks are designed primary for the people’s needs and for the environment safeness. These banks are focused on financing the real economy as it is reflected by the loans in total assets ratio.

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An empirical analysis will be made to evaluate if sustainable banking can be a solution to replace the more riskiness business model used by the *Global Systemically Important Financial Institutions.*

2. Background

No matter the complexity of the banking system, the main channel to which banks' balance sheet mismatches and weaknesses affects the real economy is usually the contraction in the supply of credit (Bernanke, 1983, 257). And there is enough evidence to demonstrate this in the case of *GSIFIs.* Also, banking crises regularly come on the heels of periods of strong credit growth (Bordo and Meissner, 2012, 7-14, Gourinchas and Obstfeld, 2011, 38-40).

The financial sector is inherently procyclical, that is, it amplifies the business cycle, irrespective of the capital requirements or other regulations. In the pre-crisis period, the balance sheet mismatches of banks include rising leverage ratios, maturity mismatches and, especially in the case of emerging markets and developing countries, foreign exchange mismatches. This is reflected on the liability side by an increase in the ratio of noncore-to-core funding. As banks seek to expand their balance sheets, they generally turn to noncore funding since the more stable core (mainly deposits) liabilities tend to be more sluggish (Shin, 2011, 1-7). Shin find out that excessive asset growth is mirrored on the liabilities side of the balance sheet by shifts in the composition of bank funding, given by the fact that in a lending boom when credit is growing very rapidly, the pool of retail deposits is not sufficient to fund the increase in lending.

Bruno and Shin (2013, 4-9) found that an increase in noncore-to-core funding is the most consistently reliable indicator of vulnerability of a country, both to a currency crisis and to a credit crisis.

Once the financial system as a whole becomes more leveraged, it becomes vulnerable to shocks such as sudden withdrawals of funds, stops in capital inflows or changes in asset prices (Claessens, Ghosh and Mihet, 2013, 158).

The primary source of the funding for banks, which is considered the core funding, is represented by deposits raised from retail clients from the household sector. During a credit boom the bank resorts to alternative, non-core liabilities to finance its lending. This affected both global and local banks. Shin (2011, 3-4) considers Northern Rock's funding structure being the most relevant example (Figure 1).

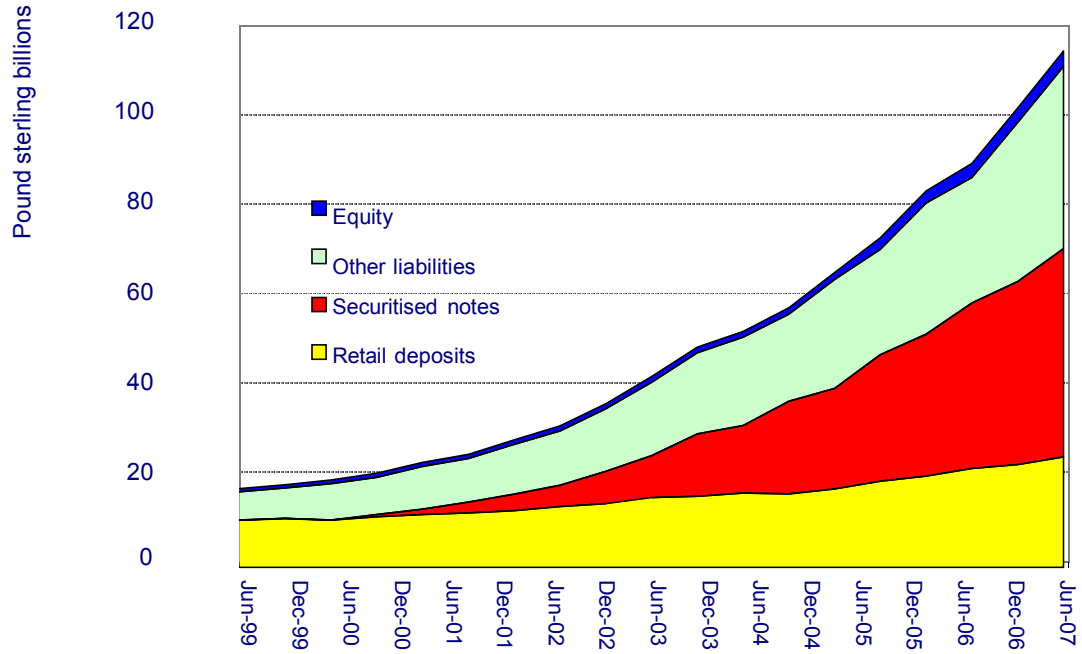

Figure 1. Composition of Northern Rock's Liabilities (June 1998 - June 2007)

Source: Shin H., Macroprudential policies beyond Basel III, 2011.

From 1998 to 2007, Northern Rock's lending increased 6.5 times. With respect to this increase it is to be outline that it exceeded the funds raised from retail clients, the rest being covered from the wholesale funding.

A Bank for International Settlements study (2010) highlights how the branches and subsidiaries of foreign banks in the United States borrow from money market funds and then channel the funds to their headquarters. Bruno and Shin (2013, 3-7) note (based on Baba, McCauley and Ramaswamy, 2009) that in the run-up to the crisis, roughly 50% of the assets of U.S. prime money market funds were obligations of European banks. The funds channeled by the branch to headquarters (interoffice assets) constitute gross capital outflows from the United States (Figure 2). In normal conditions, net interoffice assets should be negative, considering that foreign bank branches should act as lending outposts, but the parent banks started to considered them funding sources, which led to a positive net interoffice assets between 2001 to 2011. Bruno and Shin (2013, 3-7) based on the BIS report (2010), note that many European banks use a centralized funding model in which available funds are deployed globally through a centralized portfolio allocation decision. Also they point out that there is extensive evidence that internal capital markets serve to reallocate funding within global banking organizations (Cetorelli and Goldberg 2009, 2010).

The net interoffice position of foreign banks in the US therefore reflects the extent to which global banks were engaged in supplying US dollar funding to other parts of the world. From the Figure 3 results that the US dollar is the currency that dominates in the international banking and it was behind the increase of capital flows. This was highlighted by Borio and Disyatat (2011).

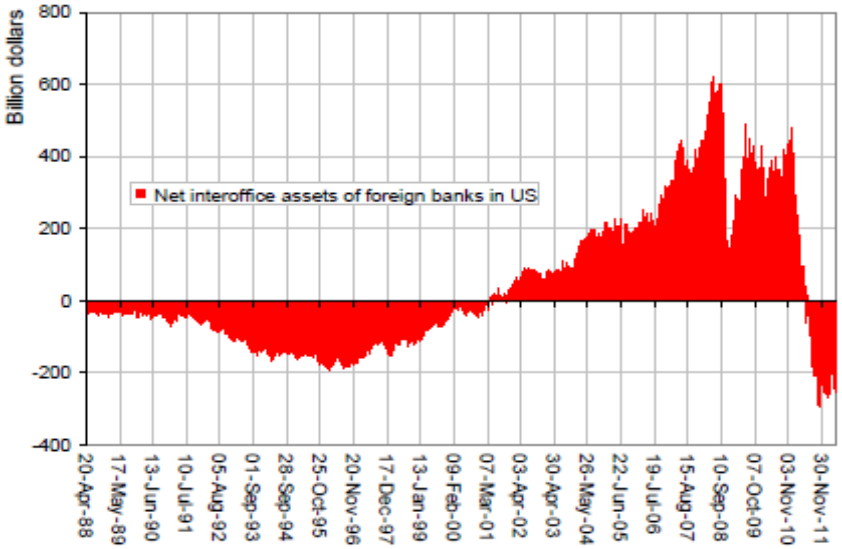

Figure 2. Net interoffice assets of foreign banks in the US

Source: Bruno V., H. Shin Working Paper 19084, Assessing Macroprudential Policies: Case Of Korea, National Bureau Of Economic Research 1050, May 2013.

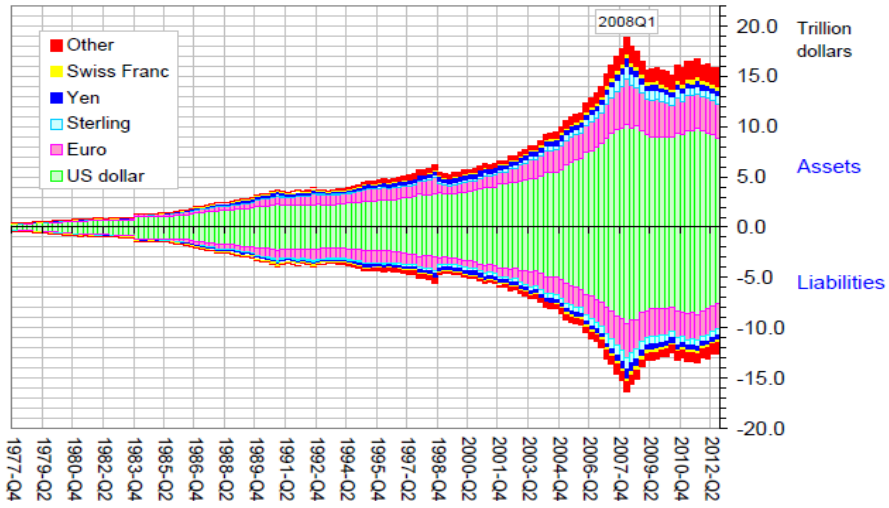

Figure 3. Foreign currency assets and liabilities of BIS reporting banks, classified according to currency (BIS Locational Banking Statistics Table 5A).

Source: Bruno V., H. Shin Working Paper 19084, Assessing Macroprudential Policies: Case Of Korea, National Bureau Of Economic Research 1050, May 2013.

Note: Locational data are organized according to the residence principle, and so the US dollar series in Figure 3 show the US dollar-denominated assets and liabilities of banks outside the United States. The Euro series show the corresponding Euro-denominated assets and liabilities of banks that are outside the Euro area, and so on.

The questions raised are: will rethink GSIFIs their approach, can them focuses on the most relevant markets, giving up to some areas, will they channel their resources to lending on lower rates of return and long repayment periods or they will continue to pursued the short term profits whithout having in view the people needs?

3. Empirical Findings

The new international regulation framework seems to address the issues identified during the financial crises, being imposed capital surcharges linked to systemic risk, countercyclical capital requirements, limits on credit growth, liquidity limits (net stable funding ratio - NSFR, liquidity coverage ratio - LCR), changes to compensation, market discipline, governance, the separation of securities businesses from traditional banking (Volcker, Vickers, Liikanen initiatives) etc.

However the impact of the regulation and whatever the decision will be taken on the separation of activities (possibly into trading and traditional banking), it does not mean that *GSIFIs* will adopt automaticaly a new business model, a sustainable one. This means *GSIFIs* should focus on taking deposits and offering loans, and making a fair margin on the difference in interest rates between the two.

The *new businsses model* can imply just reconsidering the business towards the new wave of regulation and doing the same old activity but with a view to arbitrage the rules.

Some recent research found that the enhanced capital requirements could lead to an intense deleverage of GSIFIs, if they cannot raise new capital. This allready happens in some cases. These cases are viewed as *bad deleveraging* (occurs via asset contraction) because this is more damaging for the economy, while good deleveraging occurs via building capital. The deleveraging of a bank after a negative balance-sheet shock may be optimal from a microprudential point of view, but the negative externalities of the deleveraging through the contraction in the supply of credit to the real sector may impose costs on the broad economy (Jiménez, Ongena, Peydró and Saurina, 2013, 3).

Deleveraging may also argued to be bad if it occurs by manipulating risk-weighted assets (RWA) through regulatory arbitrage, because the intent is to minimize the holding of capital.

Some argue that Basel III is too complex (Haldane, 2012, 8-24) and regulatory arbitrage defeats purpose of capital rules, derivatives playing a major role. This is in line with Blundell-Wignall and Atkinson (2012, 14) who highlights that some US universal banks have managed to hold total assets (TA) flat (including derivatives) in absolute terms, while they have managed to reduce risk-weighted assets (RWA) by about 11% from 2009 Q1 to 2012 Q1 via the usual risk-weight optimization techniques. But what is spectacular as Blundell-Wignall and Atkinson (2012, 15) suggest is that some investment banks have managed to hold RWA flat while more than doubling total assets.

Blundell-Wignall, Atkinson and Roulet (2013, 5-7), show us “how big is the derivative mountain?” and how GSIFIs presents lower risk-weighted assets to total assets than traditional banks (Fig.4 and 5).

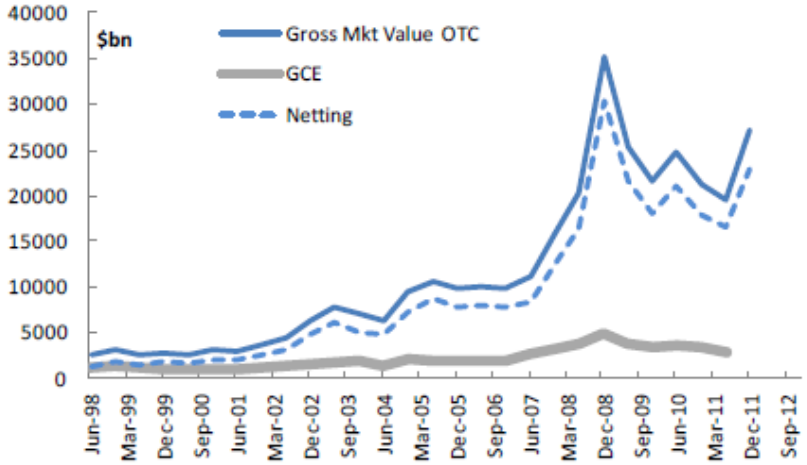

Figure 4. Gross market value of derivatives, netting and gross credit exposure

Source: Adrian Blundell-Wignall, Paul Atkinson and Caroline Roulet (OECD), The business models of large interconnected banks and the lessons from the financial crisis, ESRC/NIESR conference.

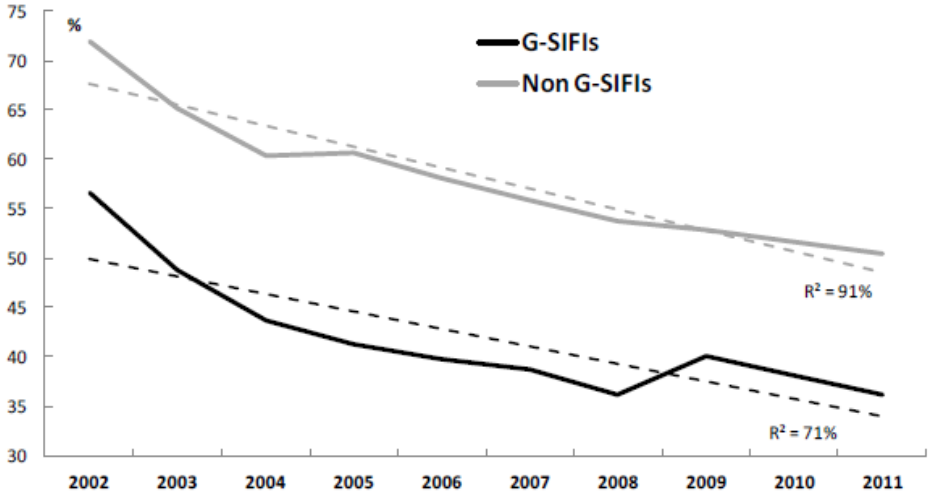

Figure 5. RWA/TA GSIFI & Traditional Banks

Source: Adrian Blundell-Wignall, Paul Atkinson and Caroline Roulet (OECD), The business models of large interconnected banks and the lessons from the financial crisis, ESRC/NIESR conference.

The ratio of risk-weighted assets to total assets of GSIFIs, as some studies suggest, could be the result of the sophisticated internal models used to determine the capital requirements, which often do not fully captured the risks involved.

The riskiness of the GISFIs bank business model is evident, the model being associated with all the drivers of the latest financial crises (excessive leverage, maturity mismatches, assets prices increase driven by credit booms, credit booms funded with sort-term wholesale deposits, reducing incentives to screen and monitor lending, exacerbating over borrowing due to securitization).

As far as concerns professional standards and culture in banking industry, reviewing these aims to reform behaviour that is defined as unsustainable and deteriorating for the good of customers, employees and shareholders. The measures imposed aimed at tackling irresponsible and unethical banking by placing greater responsibility on senior staff, those responsible for the most serious cases of malpractice, might end up being criminally prosecuted for reckless misconduct. But business decisions always involve a degree of risk and the commercial environment is unpredictable, so it is hard to determine if a decision was reckless after years it was taken, while at the time it is taken it may be a perfectly reasonable course of action (The Guide to Sustainable Banking, 2013, 11).

In conclusion, changing the regulations will not end up automatically in changing the values and the business model of GSIFIs, unless they adopt the sustainable banking model, which has some features that makes him more reliable and robust.

The *sustainable banking model* will be presented showing its good parts by contrast with the GSIFIs model and through a financial comparison between the two peer groups.

Global Alliance for Banking on Values (GABV) is the only association of sustainable financial institutions.

According to GABV, sustainable banks are focusing simultaneously on people, planet and prosperity. Products and services are designed and developed to meet the needs of people and safeguard the environment; generating reasonable profit is recognized as an essential requirement of sustainable banking but is not a stand-alone objective. Sustainable banks don't just avoid doing harm, they actively use finance to do good.

Principles of sustainable banking as defined by Global Alliance for Banking on Values (GABV), are as follows:

1. triple bottom line approach at the heart of the business model;

2. grounded in communities serving the real economy and enabling new business models to meet the needs of both;

3. long-term relationships with clients and a direct understanding of their economic activities and the risks involved;

4. long-term self-sustaining and resilient to outside disruptions;

5. transparent and inclusive governance;

6. all of these principles embedded in the culture of the bank.

The sustainable banks do not look for the highest financial rate of return, but for the highest *sustainable* rate of return, while being profitable in the long run. In case of sustainable banks this goal it is reflected in the shareholders vision and strategy. Among these banks, credit unions and financial cooperatives are a part of the financial sector that conducts sustainable banking since a long time ago. Their business and organizational structure base on community relations, on supporting local businesses and on solidarity. This institutions are owned by its members, and exists primarily to provide savings and loans to these members. This particular ownership structure and functioning principle is though not oriented in making profit for external shareholders.

The study made by GABV, called *"Strong and Straightforward: The Business Case for Sustainable Banking"*, comparing sustainable banks and GSIFIs, found sustainable institutions to be more *"robust and resilient"* than much of the high street, as well as making a significantly bigger impact on society and on the real economy.

GABV updated the initial research by issuing in 2013 "*Real Banking for the Real Economy: Comparing Sustainable Bank Performance with the Largest Banks in the World"*, expanding the number of sustainable banks, to include new members of the GABV, to revise the list of GSIFIs for changes made in November 2012 to this peer group by the Financial Stability Board and to include financial information for 2012.

This study presents the financial profiles of the two peer groups during a 10 year period, divided over three time periods: 2003 to 2012 (Over the cycle), 2003 to 2007 (Pre-crisis) and 2008 to 2012 (Crisis/post-crisis).

The study highlights the fact that the banks that dominate the current banking system have relatively low levels of lending to the real economy and relatively low capital positions (Peter Blom, chair of the GABV, The Guide to Sustainable Banking, 2013, 27). He also suggests that sustainable banks haven't developed their banking models because of regulations. They operate a different business model because of their values-based approach.

The degree to which a bank finances the real economy is evident from the portion of assets on its balance sheet that are devoted to lending. The findings show that on average, sustainable banks contribute over 75,9% of their balance sheet in loans to the real economy, while the GSIFIs set aside just over 40% (Table 1). For sustainable banks this level show that lending remains their core activity.

In addition, sustainable banks rely much more on client deposits to fund their balance sheet compared with GSIFIs, which reduces the liquidity risk. The sustainable banks had also strong capital positions, relative to the GSIFIs, especially as measured by the Equity/Total Assets comparison. These levels are associated with those in the past decades.

The sustainable banks did not show substantially higher levels of capital than the GSIFIs relative to risk based capital measures, but these could be affected by the relatively low level of risk weighted assets (RWA) compared to total assets for GSIFIs, as calculated by their risk models, which often not fully capture the risks for which capital is required and by the fact that sustainable banks determine their capital requirements using less refined approaches.

The sustainable banks have stable Returns on Assets although at levels below those reported by GSIFIs prior to the crisis. However, the sustainable banks provide resilient financial returns over the cycle, with lower levels of volatility. The GSIFIs perform better on Returns on Equity, on average, over the cycle, but there is more volatility and post-crisis returns are lower for the GSIFIs. In addition, the lower level of Equity/Assets for the GSIFIs means that a portion of these higher returns come from greater leverage, implying greater risk. However, the profits booked by large banks active in the financial markets prior to the crises may not have been real.

Relative to growth, the sustainable banks had much higher growth in Loans, Deposits, and Total Income compared with the GSIFIs over the cycle. As a result, the sustainable banks show a much more consistent growth pattern over the full period reviewed.

Table 1

Comparison between GSIFIs and sustainable banks financial position

Loans to Total Assets			
	Post-crisis 2008 to 2012	Pre-Crisis 2003 to 2007	Over the Cycle 2003 to 2012
Sustainable Banks	77.4%	74.5%	75.9%
GSFIs	39.3%	41.0%	40.1%
Deposits to Total Assets			
Sustainable Banks	75.3%	74.5%	73.1%
GSFI's	42.8%	43.0%	42.9%
Capital Comparisons			
Sustainable Banks			
Equity/Total Assets	7.8%	6.7%	7.2%
RWAs/Total Assets	61.9%	n/m	n/m
GSIFIs			
Equity/Total Assets	5.9%	5.2%	5.5%
RWAs/Total Assets	39.4%	n/m	n/m
Financial Ratios			
Sustainable Banks			
Return on Assets	0.53%	0.59%	0.56%
Standard Deviation	0.16%	0.17%	0.21%
GSFIs			
Return on Assets	0.37%	0.78%	0.57%
Standard Deviation	0.37%	0.29%	0.36%
Sustainable Banks			
Return on Equity	7.5%	8.8%	8.2%
Standard Deviation	2.1%	1.9%	2.7%
GSFIs			
Return on Equity	5.2%	17.7%	11.5%
Standard Deviation	10.0%	10.6%	10.2%
Growth			
Sustainable Banks			
Loans	12.5%	13.6%	12.6%
Deposits	13.9%	13.1%	12.3%
Total Income	8.0%	12.8%	10.4%
GSFIs			
Loans	3.8%	17.7%	8.4%
Deposits	6.5%	16.6%	9.5%
Total Income	2.0%	15.8%	6.1%

Source: Global Alliance for Banking on Values, Real Banking for the Real Economy: Comparing Sustainable Bank Performance with the Largest Banks in the World.

The study show that over the long term the sustainable business model, which is based on values, offers a compelling route to a more stable and sustainable banking industry, allowing greater focus on the real economy, more resilience in the banking system, more profitable and less risky financial returns, and sustainable growth for banks.

If we analyze the client types and services offered by this two peer groups, we will make a strong point on the *GSIFIs* side, because they serve wide world the corporate clients, which, like *GSIFIs,* dominate the world's economy. Focusing on communities and playing by the old rules is obviously a good thing, but its not enough. Playing local will not help to cover the *global needs*. It will be a big challenge for sustainable banks to serve the international players, considering their number and size. Even their commitment to lending will be hard to achieve when we are talking about large infrastructure projects or complex transactions because this is clearly not on the list of the relatively small sustainable banks.

On the short run it is obvious that sustainable banks will not grow enough to dominate the banking system.

We also assume that it is virtually impossible for *GSIFIs* to reduce their size, their range of products and services and to return to a local and traditional approach, since that in the context of globalization they are playing key roles in channeling financial flows. But it does not mean that they cannot adopt the values and the principles of sustainable banks, which seems to offer the pattern for a more stable and sustainable banking industry.

We can see from the latest research that GSIFIs are not making serious steps to adopt a more sustainable strategy, since they continue to arbitrage the rules due to their low level of capital and are involved in large speculative operations which leaves no room for lending to the real economy.

Not all banks can be sustainable, and we see that voluntary measures alone are not sufficient. On the other hand regulations are not ensuring either that they will advance sustainable.

4. Conclusions

Global Systemically Important Financial Institutions are still operating a risky business model on low level of capital, being involved in large speculative operations and less in lending to the real economy. It seems like the new wave of regulations did nothing to change their values, the focus being on how to arbitrage these new rules. Sustainable banks, as the latest reviews show, are more robust and resilient, funding themselves through a more stable structure, mostly from customer deposits and channelling a large part of their assets to the real economy and less to derivatives and risky transactions. The major differences between these two banking models reside in values, sustainable banks adopting them voluntary. Even if in the future a decision will be taken on separation of activities, between trading and traditional banking, this will not ensure that *Global Systemically Important Financial Institutions* will become sustainable, since their experience and focus is on making short term profits on low level of equity, while arbitraging the rules. On the short run it is hard to believe that the *Global Systemically Important Financial Institutions* will reduce their size and their role in channelling the global financial flows, and the sustainable banks will grow enough to dominate the global banking system.

Through its values and financial performances the sustainable banking model is the solution, and it must be adopted by *Global Systemically Important Financial Institutions*, either on the pressure of the communities or on the pressure of a more thigh and adequate regulation.

Acknowledgements

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MODELLING AND PREDICTING THE REAL MONEY DEMAND IN ROMANIA

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Abstract

The main aim of this article is to model the quarterly real money demand in Romania and to make short-run forecasts for 2014:Q1-2015:Q1. A vector-autoregressive model (VAR(1)) was built for stationary data series of real money demand, real GDP and spread between active and pasive interest rate of the credit institutions over the period from 2000:Q1 to 2013:Q4. In the first period the variations in the double differentiated real money demand are exclusivly generated by the changes in this variable.The short-term forecasts based on this model indicated a slow variation in the rate of real money demand. For the first quarter of 2014 the comparison of the forecast with the actual value is made and an error of 0.94 percentage point was obtained. Starting with the second quarter of 2014, a slow decrease is anticpated for the rate of real money demand.

Keywords: money demand, VAR model, spread, forecasts

JEL classification: C51, C53

Introduction

Most of the emirical studies regarding the money demand are related to developped countries. However, for countries like Romania few studies were made for explaining the evolution of this indicator. The instability of money demand is not specific to transition economies, being observed also in well developed countries. The main objective of this study is to model and predict the quarterly evolution of real money demand M2 in Romania. Therefore, the vector-autoregression approach will be used as forecasting method. The money demand is better correlated to the spread between active and pasive interest rate of the credit institutions and the real GDP during 2000-2013. Starting with the second quarter of 2014 a slow decrease in the rate of real money demand is anticipated.

Literature review

The expansion of monetary aggregates is an essential process that is attentively monitored by authorities of monetary policy. There are economic programs where some performance criteria are fixed by taking into account the boundaries of monetary aggregates. In this approach, the estimation of money demand becomes essential, but this process is based on the examination of the relationships between money demand and other relevant economic variables.

Econometric models based on empirical approach for money demand entered in researchers attention since the 1970s. The utility of using these models is multiple: forecasting, inference, establishing the policy, parameter consistency. Moreover, it was observed the failure of many equations in predicting the money demand during periods with explosion in M1, missing money or decline in great velocity. Scutaru and Pelinescu (2001, p.35) have used a vector error correction model to explain the real money demand using as indepedent variables the index of consumer prices and industrial production index. The monthly prediction of money demand were made over the period from December 1999 to December 2000. Mutluer and Barlas (2002, p. 60) built an error correction model for money demand in Turkey using as explanatory variables in long run equation: real GDP, inflation rate, interest rate on deposits, real exchange rate and interest rate on government securities. The authors observed a significant influence of inflation rate and real exchange rate on money demand in Turkey during 1987-2001.

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The monetary agregate in broad sens (M2) includes the net M1, the private savings and the unauthorized and non-personal deposits from accredited banks. It provides useful information regarding the money savings and the inflation trend. Pelinescu (2012, p. 7) showed that M2 could serve as leading indicator for the economic activity.

Beyer(2009, p. 4) proposed an empirically stabel model for money demand in the euro zone that was used in making predictions. The author showed that housing wealth captured in the first decade of the actual century a major part from trending money behaviour. Giese and Tuxen, (2008, p. 8) showed that the relationship between prices and money supply was quite low in the past 10 years. Setzer and Wolf (2012, p. 300) drew attention that since 2001 the money demand specification for the euro zone were unstable. This instability is not caused by altered standard factors that generate preference for holding money.

Bahmani-Oskooee, Kutan and Xi (2013, p. 3280) obtained a stable and correctly specified money demand in many countries from Central and Eastern Europe, showing that policy based monetary targeting can continue to be used despite large monetary uncertainty.

Jawadi and Sousa (2013, p. 509) modeled the money demand for euro zone, England and USA using quantile regressions and smooth-transition models. They obtained that the sensitivity of money demand relative to inflation rate becomes higher when the money holdings are very low. A double variation, across the countries and because of the regime, was observed for money demand elasticity with respect to GDP, inflation rate, interest rate and exchange rate.

Dreger and Wolters (2014a, p. 307) analyzed the prediction performances of M3 comparing these with the spread of interest rate. Even if the data from recent financial crisis period are includes, M3 has an evolution in line with money demand. Recently, a heterogeneous-agent model was built by Ragot (2014, p. 100) who proved that 78% of the variation in money demand are explained by financial friction in France.

Dreger and Wolters (2014b, p. 5) have shown the lack of utility given by co-integration methods for explaining the correlation between money demand in time and other economic indicators. They built a stable long-term money demand function for euro zone and USA. Money balances proved to be useful tools in monetary policy mostly in cases when nominal interest rates have limits lower than zero.

Methodology and results

A first determinant of money demand is a variable that measures the level of economic activity like an income or a wealth variable. The money demand is directly proportional to income. For income variables good proxies are the Gross Domestic product (GDP) and the Gross National Product (GNP). The money demand is inversly correlated to market interest rate. If there are large changes in prices, the impact of inflation and exchange rate of money demand is significant. The cost of holding money increases if the inflation grows, fact that explains the inverse relationship between real money demand and inflation rate. In developing countries like Romania the inflation elasticity on long term should be high because of the limitation of the range of financial instruments excepting money. Moreover, a major part of government portofolio is represented by real assets. The negative correlation between foreign exchange rate and moneey demand is explained by the fact that an increase in the deposit holders' foreign currencies demand will determine a decrease in domestic currency.

The following variables have been chosen, quarterly data being collected over the period 2000:Q1-2013:Q4: real money demand, real GDP, index of consumer prices, reference interest rate, spread of active-passive interest. The data are provided by the National Institute of Statistics and National Bank of Romania. The data are seasonally adjusted using moving average method for GDP and spread and Tramo/Seats methos for the rest of the variables.

The matrix of correlation for all the variables that have been included in the study with seasonally adjusted data was computed. The objective is to determine the variables that are more correlated with the money demand. In Romania M2 is weak correlated with the interest rate of monetary policy, a strong relationship being observed between M2 and the spread.

Table 1

Correlation matrix of different economic variables during 2000:Q1-2013:Q4

Variable	M2_SA	GDP_SA	CPI_SA	IR_SA	SPREAD_SA
M2_SA	1.000.000	0.947076	-0.761455	0.347259	-0.949659
GDP_SA	**0.947076**	1.000.000	-0.842278	0.382600	-0.978191
CPI_SA	**-0.761455**	-0.842278	1.000.000	-0.533567	0.837677
SPREAD_SA	**-0.949659**	-0.978191	0.837677	-0.385508	1.000.000

Source: authors' computations

The negative correlation between money demand and inflation rate, which is contrary to macroeconomic theory, might be explained by the negative correlation between inflation and growth rate for foreign currency since there is a direct correlation between inflation and broad money of domestic currency.

The data were not stationary, being transformed as it follows: for the consumer price index and interest rate the logharitm was applied, while a diferentiation of order one was applied for real GDP (D_GDP) and spread (D_SPREAD) and of order two for real money demand (D2_M2). A valid model of order 1 (VAR(1)) was estimated, considering as variables D2_M2, D_GDP and D_SPREAD.

D2_M2 = - 0.400100650369*D2_M2(-1) - 0.267401372295*D_GDP(-1) - 82.0134442876*D_SPREAD(-1) + 86.7593928012 (1)

D_GDP = 0.0330315518259*D2_M2(-1) + 0.513712933465*D_GDP(-1) - 55.8950430331*D_SPREAD(-1) + 96.3147719644 (2)

D_SPREAD = 0.000165398746575*D2_M2(-1) - 0.0008414006748*D_GDP(-1) + 0.152288913244*D_SPREAD(-1) - 0.0326983298156 (3)

It is surprising that the coefficient of real GDP is negative, contrary to the theory. A possible explanation for this was given by W. Gavin (2005) "If we are in an era of relative price stability, then we expect to see the effects of shifts in money demand. We should not be surprised to see M2 and GDP growing in different directions much of the time."

Almost all the lag criteria (LR, FPE, SC, AIC) indicated that the lag should be 1. For this model all the tests were checked, resulting that the errors are independent, homoskedastic, following a normal distribution. The model satisfies the stability condition. The results of the tests are presented in Appendix 1.

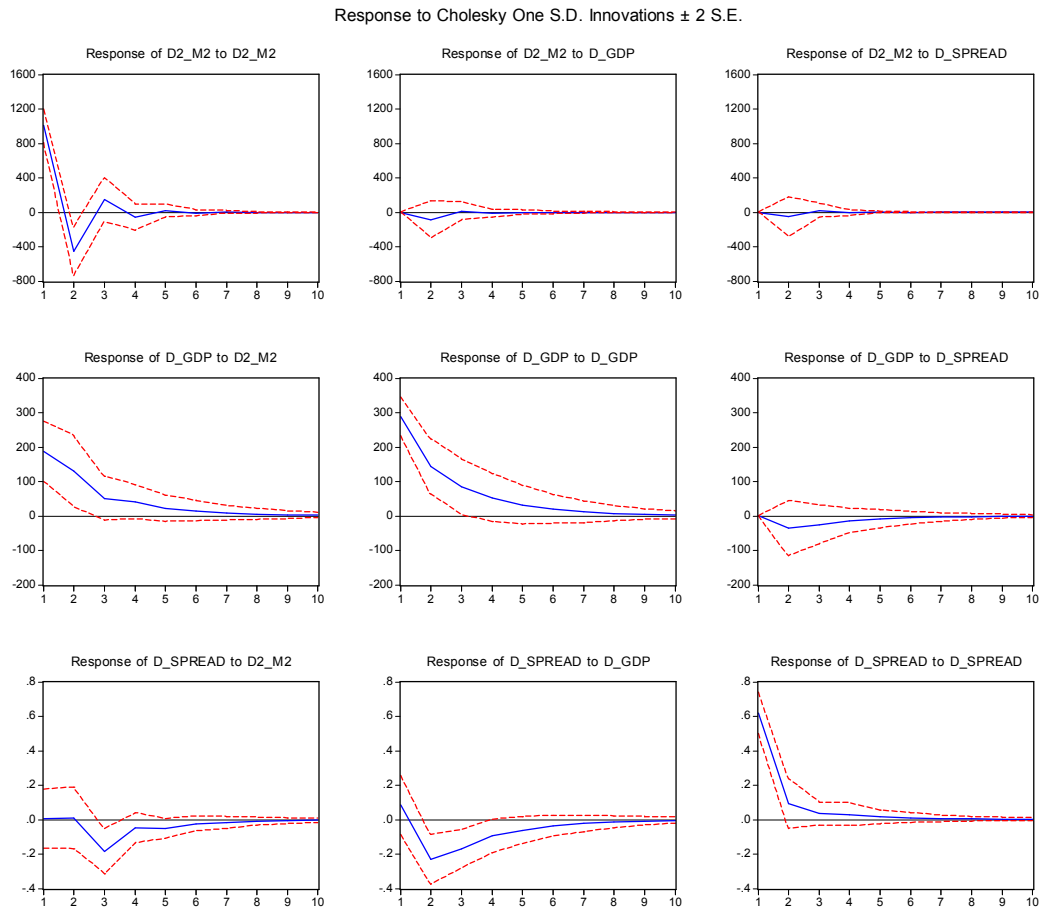
Response to Cholesky One S.D. Innovations ± 2 S.E.
Response of D2_M2 to D2_M2
Response of D2_M2 to D_GDP
Response of D2_M2 to D_SPREAD
Response of D_GDP to D2_M2
Response of D_GDP to D_GDP
Response of D_GDP to D_SPREAD
Response of D_SPREAD to D2_M2
Response of D_SPREAD to D_GDP
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Figure 1. Impulse-response function in the VAR(1) model

Source: authors' graph

The variation of D2_M2 in the first period is due only to the changes in this variable. In the second period, 0.577% of the variation in D2_M2 is due to the changes in D_GDP and only 0.211% to the modifications in D_SPREAD. The impact of these variables increases in time, but the contribution of the monetary demand to its own changes is more than 99%.

Table 2

Variance decomposition of D2_M2

Period	S.E.	D2_M2	D_GDP	D_SPREAD
1	1007.708	100.0000	0.000000	0.000000
2	1109.617	99.21269	0.576755	0.210559
3	1119.509	99.17231	0.582574	0.245111
4	1121.069	99.15662	0.596945	0.246432
5	1121.184	99.15588	0.596875	0.247247
6	1121.216	99.15510	0.597667	0.247235
7	1121.218	99.15498	0.597752	0.247268
8	1121.219	99.15491	0.597824	0.247269
9	1121.219	99.15489	0.597842	0.247271
10	1121.219	99.15488	0.597851	0.247272

Source:authors' computations

Starting from this VAR model some predictions were made for money demand on the horizon 2014:Q1-2015:Q1. The forecasts are consider under some assumptions related to the values of spread and real GDP growth.

Table 3

Forecasts of money demand (horizon: 2014:Q1-2015:Q1)

Quarter	Forecast for rate of real money demand (%)	Value of spread (assumption)	Value of real GDP rate (%) (assumption)
2014:Q1	3.29	5.25*	0.953*
2014:Q2	3.31	5.25	0.93
2014:Q3	3.2	5.15	1.030
2014:Q4	3.15	5.15	1.035
2015:Q1	3.08	5	0.98

Source:authors' computations;* data reported by the INSSE and NBR

For the first quarter of 2014 the comparison of the forecast with the actual value (4.23%) is made and an error of 0.94 percentage point was obtained. Starting with the second quarter of 2014, a slow decrease is anticpated for the rate of real money demand.

Conclusions

The VAR model have been frequently used lately in modelling monetary indicators, being atheoretical models that correspond to the lack of enought information regarding the economic mechanisms that determined a certain evolution of financial variables. In this study, a VAR model of order 1 has been constructed for money demand in Romania. The forecasts based on this model anticipated a slow decrease in the rate of real money demand.

A future research might continue with the estimation of a structural VAR for money demand, when more economic variables are employed.

Roots of Characteristic Polynomial
Endogenous variables: D2_M2 D_GDP D_SPREAD
Exogenous variables: C
Lag specification: 1 1

Root	Modulus
0.614084	0.614084
-0.345444	0.345444
-0.002738	0.002738

No root lies outside the unit circle. VAR satisfies the stability condition.

VAR Lag Order Selection Criteria
Endogenous variables: D2_M2 D_GDP D_SPREAD
Exogenous variables: C
Sample: 2000Q1 2013Q4

Lag	LogL	LR	FPE	AIC	SC
0	-821.9867	NA	8.44e+10	33.67293	33.78875
1	-789.1899	60.23907*	3.20e+10*	32.70163*	33.16493*
2	-786.1850	5.151257	4.11e+10	32.94633	33.75711
3	-777.8008	13.34623	4.26e+10	32.97146	34.12972
4	-769.1720	12.67914	4.42e+10	32.98661	34.49235
5	-758.8722	13.87325	4.34e+10	32.93356	34.78677

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

VAR Residual Portmanteau Tests for Autocorrelations
Null Hypothesis: no residual autocorrelations up to lag h
Sample: 2000Q1 2013Q4
Included observations: 53

Lags	Q-Stat	Prob.	Adj Q-Stat	Prob.	df
1	1.678095	NA*	1.710366	NA*	NA*
2	5.143124	0.8217	5.311279	0.8064	9
3	13.46605	0.7632	14.13358	0.7203	18
4	45.02160	0.0162	48.26509	0.0072	27
5	47.63767	0.0929	51.15367	0.0485	36
6	49.73256	0.2904	53.51600	0.1799	45
7	52.93113	0.5156	57.20130	0.3572	54
8	58.29204	0.6445	63.51526	0.4581	63
9	70.27230	0.5356	77.94603	0.2954	72
10	77.45302	0.5911	86.79668	0.3096	81
11	88.28808	0.5313	100.4695	0.2115	90
12	92.10277	0.6752	105.4007	0.3112	99

*The test is valid only for lags larger than the VAR lag order.
df is degrees of freedom for (approximate) chi-square distribution

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)
Sample: 2000Q1 2013Q4
Included observations: 53

Joint test:

Chi-sq	df	Prob.
41.95981	36	0.2283

Individual components:

Dependent	R-squared	F(6,46)	Prob.	Chi-sq(6)	Prob.
res1*res1	0.131465	1.160462	0.3438	6.967666	0.3238
res2*res2	0.190007	1.798441	0.1204	10.07040	0.1217
res3*res3	0.194543	1.851744	0.1099	10.31080	0.1122
res2*res1	0.239286	2.411589	0.0414	12.68217	0.0484
res3*res1	0.071001	0.585942	0.7397	3.763047	0.7087
res3*res2	0.095382	0.808363	0.5688	5.055233	0.5367

VAR Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: residuals are multivariate normal
Date: 08/11/14 Time: 19:52
Sample: 2000Q1 2013Q4
Included observations: 53

Component	Skewness	Chi-sq	df	Prob.
1	0.067832	0.040643	1	0.8402
2	-0.099945	0.088236	1	0.7664
3	0.239903	0.508389	1	0.4758
Joint		0.637268	3	0.8879

Component	Kurtosis	Chi-sq	df	Prob.
1	3.726007	1.163982	1	0.2806
2	3.818855	1.480740	1	0.2237
3	4.025267	2.321340	1	0.1276
Joint		4.966063	3	0.1743

Component	Jarque-Bera	df	Prob.
1	1.204626	2	0.5475
2	1.568976	2	0.4564
3	2.829729	2	0.2430
Joint	5.603331	6	0.4691

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FINANCIAL STABILITY OF THE REPUBLIC OF MOLDOVA ESTIMATED THROUGH MONETARY INDICATORS

Rodica PERCIUN[64],
Svetlana DODON[65]

Abstract:

Financial stability is important for any economy regardless of its degree of development, because with the help of financial institutions main activities can be carried out for all economic sectors. So, the crisis of the financial system can lead to economic bottlenecks, direct losses, and respectively to lower economic growth and recession. In this paper the authors analyze the key points related to estimation of financial stability of RM through the monetary indicators.

Keywords: Financial stability, monetary aggregates, financial instability, national economy

JEL Classification: E4, E5, E6

Many studies have shown that periods of financial instability before the crisis could have basic elements in common. Measurement of financial stability is difficult to do because of its multidimensional nature (soundness of financial institutions, functioning of financial markets and of payment systems, etc.), that makes it almost impossible to focus into a single indicator. It is extremely difficult, also, to predict the evolutions of factors that contribute to financial stability. We have seen that a financial system may become unstable even if its mechanisms work properly, due to occurrence of external shocks. Evaluation of financial stability situation should not be limited to the identification of imbalances, but also to identification of risks and vulnerabilities that could destabilize the financial system in the future. Specialized literature tells that financial crisis is usually preceded by negative trends of key monetary indicators. In order to estimate the financial stability on the money market of Moldova we will calculate following indicators:

- Monetary aggregates: M0, M2, M3 and monetary base.
- The level of monetization of the economy after M0, M2, M3.
- The degree of dollarization of the economy.
- Level of assurance of the monetary base through foreign exchange and gold reserves of the state.
- Monetary base relative to official international reserves.
- M2 reported to official international reserves.
- International official reserves in dollars and months of imports.

Monetary aggregates: M0, M2, M3 and the monetary base. When calculating of M2 aggregate according to the methodology of National Bank of Moldova it does not include foreign currency deposits. According to the World Bank methodology M2 includes savings and foreign currency deposits of residents of all sectors with exception public administration. In the EU, M3 aggregate corresponds largely to M2 calculated according to the methodology of the World Bank. Thus, since 1998, for EU countries the cutoff value of M3 growth is established in amount of 4.5%. **According to the regulations of the countries with economies in transition growth of monetization after M2 must not exceed 3-5% annually.**

The growth rate of money supply should be sufficient on the one hand to ensure real GDP growth, on the other hand, not to invoke inflationary processes. The dynamics of monetary base significantly influence the money supply in circulation. From the analysis it is noted that the indicator of growth of the monetary base, with the exception of the crisis in 2009, is higher than cutoff. Respectively this excess is observed and at M2 and M3 aggregates. In 2013, the growth rate of M2 was 31.6 percent and M3 - 29.22% relative to previous year.

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Table 1

Dynamics of growth of monetary base and of M0, M2, M3 aggregates in%.

	2006	2007	2008	2009	2010	2011	2012	2013
growth rate of M0	12,57	29,52	13,71	16,76	14,22	7,49	21,87	32,55
growth rate of M2	12,75	32,11	6,28	13,76	19,03	10,59	18,53	31,60
growth rate of M3	12,22	47,35	18,36	-3,82	18,28	14,11	23,52	29,22
growth rate of monetary base in the broad sense	23,58	39,81	15,86	3,17	13,36	10,60	20,83	26,49

Source: Calculated by the authors according to National Bank of Moldova

Growth of monetization per capita it is significantly correlated with GDP per capita. In comparison with other countries that have similar conditions of the Republic of Moldova (the income is up to $ 3,000 per capita and financial market observes a low degree of monetization), unlike us they have lower interest rates and the inflation rate is higher (the phenomenon of cheap money).

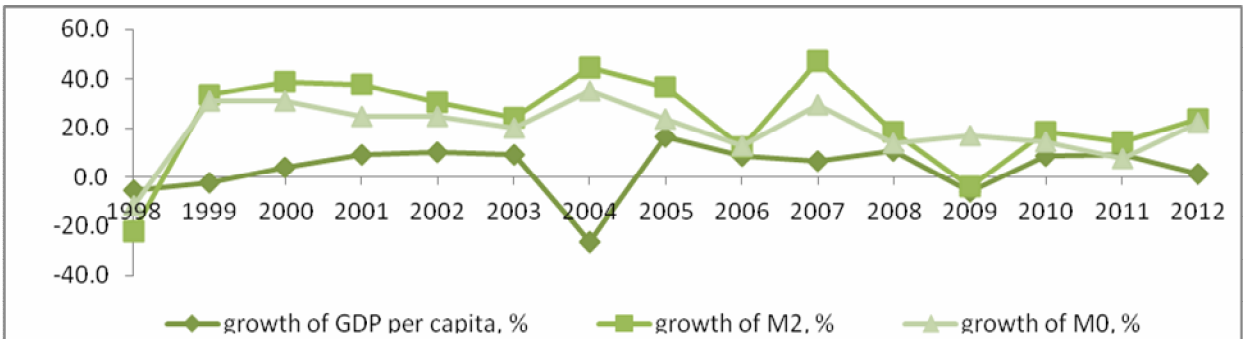

Figure 1. The dynamics of GDP per capita, of the M0 and M2 aggregates in Republic of Moldova

Source: Prepared by authors based on NBM and NBS data.

The monetization level of the economy is calculated as a ratio between broad money to GDP. Many countries with a low level of income have a degree of monetization greater than 10% calculated according to M0. In Republic of Moldova the degree of monetization by M0 was 17.57% in 2013, attesting an increase compared to the previous year. For developed countries this indicator is within 2-4%.

Another indicator is M3 relative to GDP. In Republic of Moldova critical value must be equal to M3 = 50-60% of GDP. In 2013 this indicator reached this limit, being equal to 62.7%.

In fig. 2 is shown growth of the level of monetization in correlation with IPC.

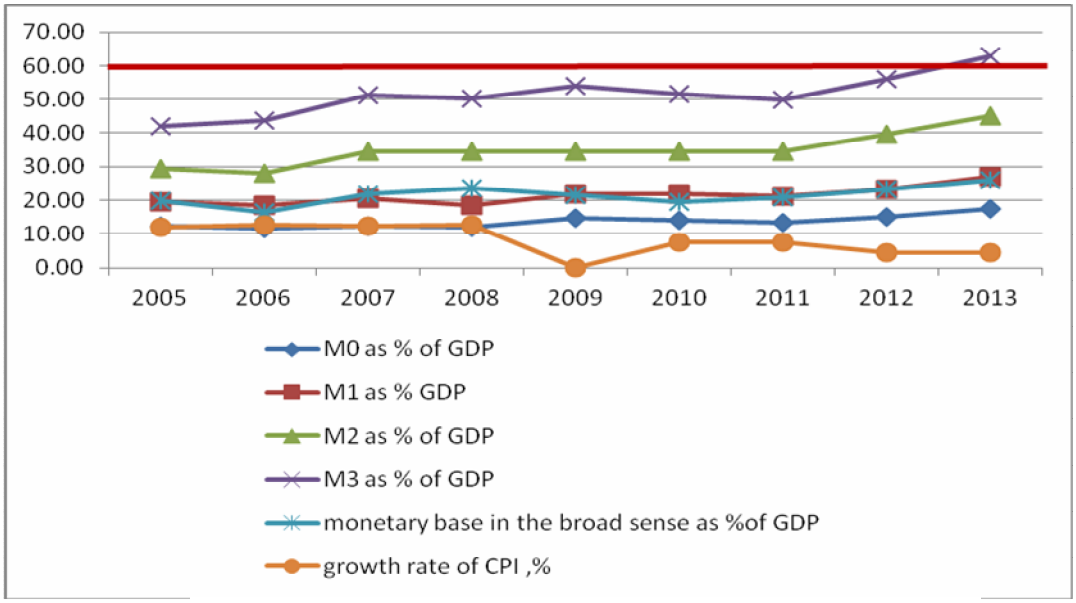

Figure 2. The monetization level of the national economy

Source: Prepared by authors based on NBM and NBS data.

After 2009 the monetization level by monetary base in the broad sense (23.4%) after M2 (39.7%) increased slightly. Theoretical value of monetization threshold by M2 must be higher than 60% of GDP for countries in transition.

In Moldova the monetization level by M2 is still insufficient to create conditions for effective growth. Practice shows that a level below 60% of GDP leads to a situation where it is impossible to massively boost the economy.

To the minimum level (at least 60% of GDP) the monetary base is substituted by foreign currency, thus takes place dollarization of the economy and removal of national currency

out of the adjustment process.

About this phenomenon attests and the next indicator - predictor of financial instability for countries in transition - **structure of economies.**

Using analogous methods, we can affirm that for Republic of Moldova **critical level of structure of savings is equal to the ratio 30:70**, so optimal structure of savings must be correlated respectively:

Savings in national currency - 70%;
Savings in foreign currency - 30%.

Disorders in mentioned correlation certify issues in the circulation of payment of the country. Moreover, this indicator shows presence currency risks for crediting system, in the case if it goes above the threshold, because all lending and investment needs are insured by foreign funds.

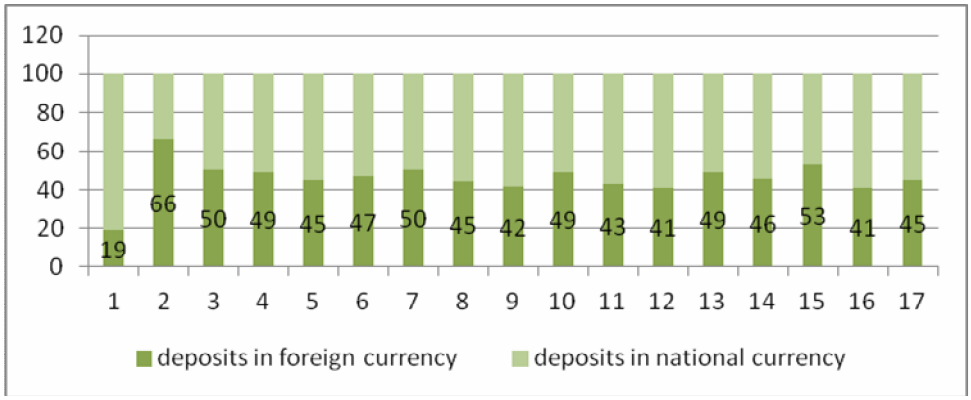

Figure 3. The structure of savings in local currency and foreign currency, in%
Source: Prepared by authors based on NBM and NBS data.

For the period under review shows a high degree of dollarization of the national economy. This can be explained by the fact that remittances are in foreign currency and the degree of distrust of the population to Moldovan Leu it is still high. In times of crisis is observed an increasing demand of foreign currency by population. Thus, in 1998 the share of foreign currency deposits rose to a critical point (66.39%). The dynamics of foreign assets is determined and by changes in reserve assets.

Another indicator from this category is correlation between deposits and money supply M2.

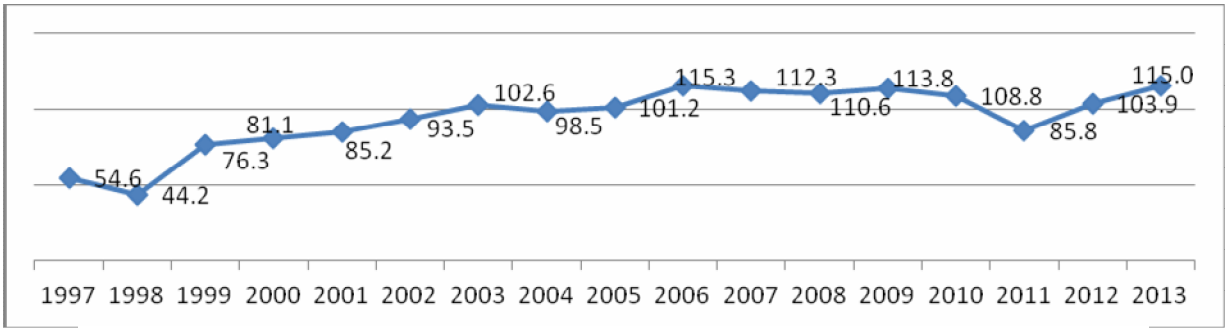

Figure 4. Dynamic of correlation between deposits and money supply (M2)%.
Source: Prepared by authors based on NBM data

The decrease of this indicator shows the decline in confidence in banking system and may lead to a possible liquidity crisis. However, this indicator can mean also and that non- banking financial institutions are efficient.

The correlation between loans and deposits indicates the ability of the banking system to obtain funds necessary to provide loans. The high value of this index indicates problems in banking sector and a low level of liquidity.

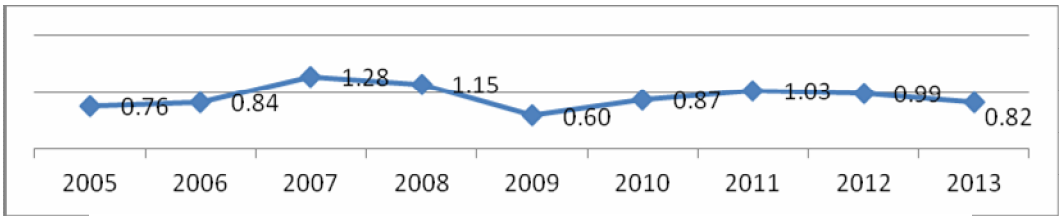

Figure 5. Dynamic of correlation between loans and deposits,%
Source: Prepared by authors based on NBM data.

When the annual growth rate of credit exceeds twice the annual growth rate of GNP is attested threat signal to the address of the banking sector increasing risk of instability.

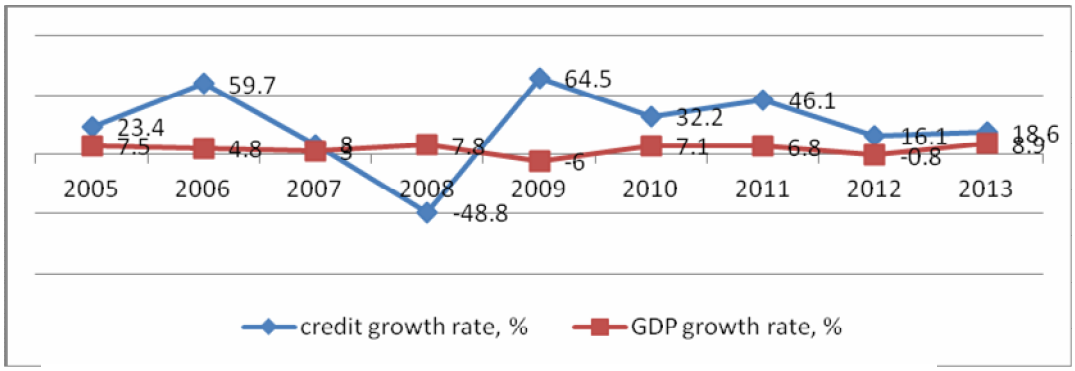

Figure 6. Dynamics of credit growth compared to GDP growth,%
Source: Prepared by authors based on NBM data.

The indicator of the level of providing monetary base through foreign exchange and gold reserves of a state it is used for the estimation of the level of insurance the stable exchange rate, regulation of inflation and ensuring financial stability. **The monetary base must be ensured through foreign exchange and gold reserves of a state, it should be at least at the level of 70-80%,** because as practice shows the methods of sterilization policy allows neutralization of only 20-30% of inflationary effect when is financed through emissions.

Choosing of the threshold of 70%, means that upper limit of financing by emission of the state and credit organizations must be within 30% of the monetary base, because only this proportion will not increase inflation over 15-20% (exceeding the 20% level of inflation already leads to fall of economic growth rate).

The growth of monetary base must be ensured with respective increase of foreign exchange and gold reserves of the state.

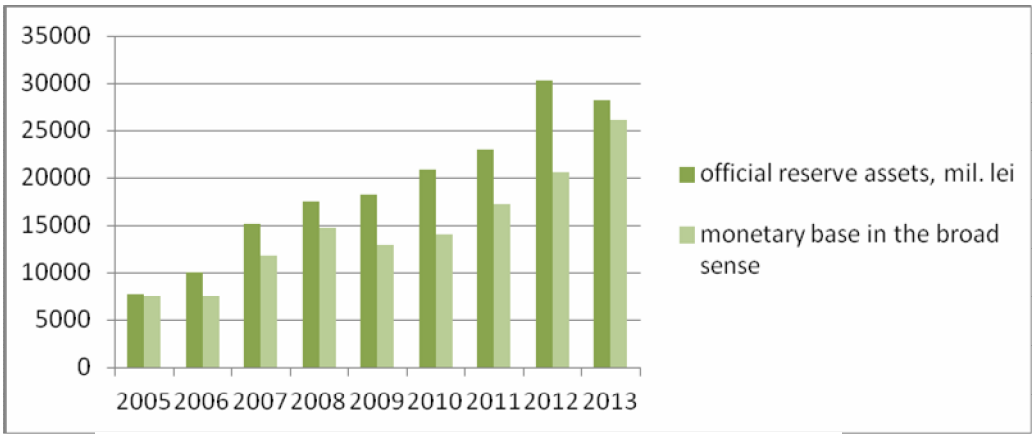

Figure 7. Indicator of level of ensuring monetary base through foreign exchange and gold reserves of the state
Source: Prepared by authors based on NBM data.

The substantial increase in official reserve assets of the state compared to the monetary base speaks about financial stability based on this criterion.

The dependence of the national economy of the international context delays process regulating and forecasting of money demand. NBM by buying foreign currency received in large volumes out of

remittances it is forced to increase official international reserves and to increase the money supply. The risk of financial crisis increase in case when occurs reduction of the level of coverage with official international reserves of M2 money supply.

Based on the indicator of correlation between M2 and foreign exchange and gold reserves is estimated liquidity risk of credit institutions. The M2 monetary aggregate can be regarded as the sum of liquid assets that can be converted into the national currency, while foreign exchange and gold reserves – as liquid asset insurance and warranty for servicing short-term loans of the state.

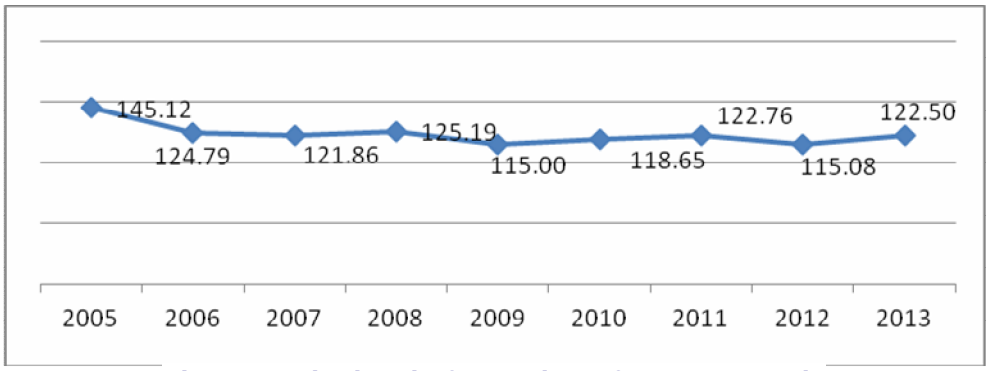

Figure 8. The level of covering of money supply with foreign exchange and gold reserves (M2 / Official reserve assets)
Source: Prepared by authors based on NBM data.

Even if during considered period occurs a significant increase in foreign exchange and gold reserves of the state, M2 growth is higher than the official reserves. For example, during the pre-crisis period in 2008, M2 growth exceeded by 25% growth official reserves. At the end of 2013 this indicator has suffered a major increase compared with 2012 and reached 122.5%. Insufficient level of coverage of money supply M2 with foreign reserves is a signal to foreign investors, meaning that occurs decrease in issuer's creditworthiness and leads to financial instability.

Official reserve assets (in mil. dollars and months of imports). For effective implementation of foreign policy, central banks are used to use its foreign assets to influence the exchange rate of domestic currency. National Bank of Moldova prevent depreciation of Leu, redeeming national currency from exchange market using its foreign reserves, or can prevent excessive appreciation of domestic currency (lei) by selling national currency against foreign currency. However, the current account deficit of the balance of payments is completed by reduction of official reserves. That is why, sensitivity of the national economy to external crisis phenomena is diminishing in terms of large foreign currency reserves. According to IMF recommendations minimal volume of official reserve assets of the NBM should be minimum in amount of 3 months of import.

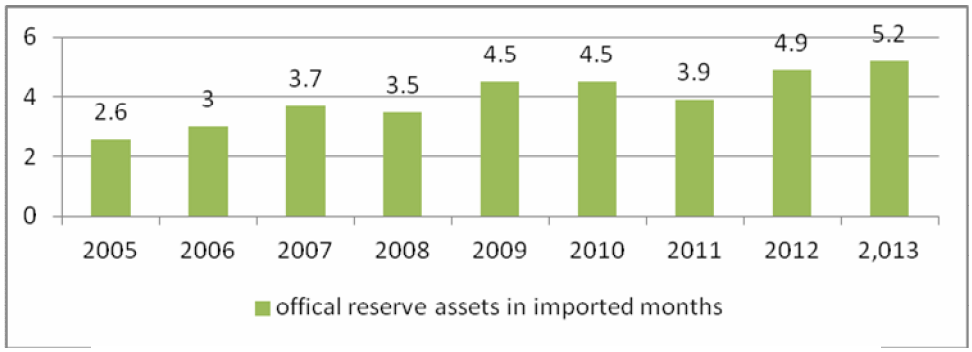

Figure 9. Volume of official reserves (months of imports)
Source: Prepared by authors based on NBM data.

At the end of 2013 volume of official reserve assets constituted 35.6% of GDP, which essentially exceeds the theoretical threshold for countries in transition (equal to 8%),while according to recommended by the IMF this indicator - corresponds to recommended level, representing 5.2 months for 2013. Foreign Exchange Reserves on 31 December 2013 amounted to 2820.6 million. dollars and increased by 12.2% compared with 2012.

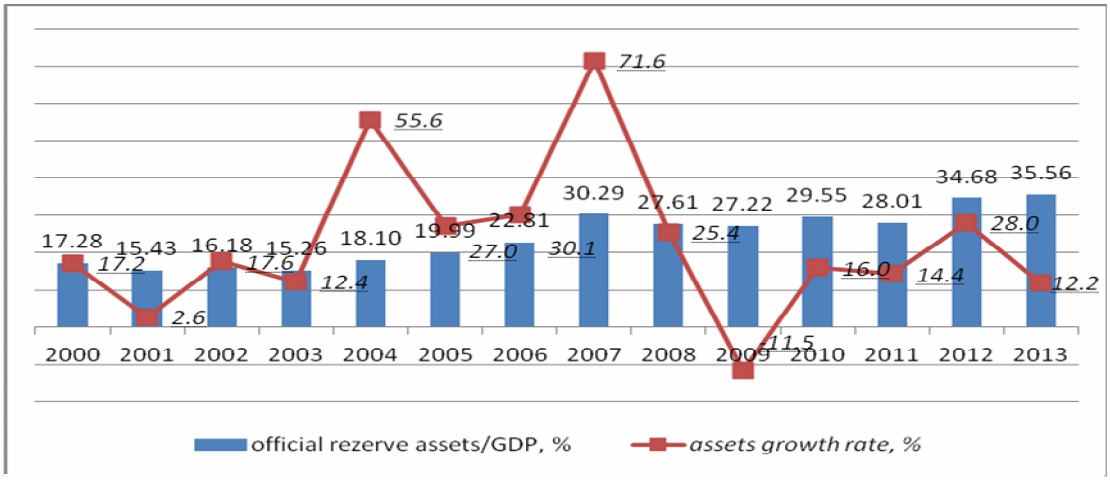

Figure 10. Dynamics of growth assets and the share of official reserves in GDP
Source: Prepared by authors based on NBM data.

Further decrease of demand for national currency will exert increasing pressure on depreciation of Moldovan leu. Exogenous shocks caused by the global financial crisis can substantially reduce the flow of foreign currency into the national economy. Therefore, the implications of this phenomenon on the leu exchange rate fluctuations and on volume of foreign reserves of BNM are imminent.

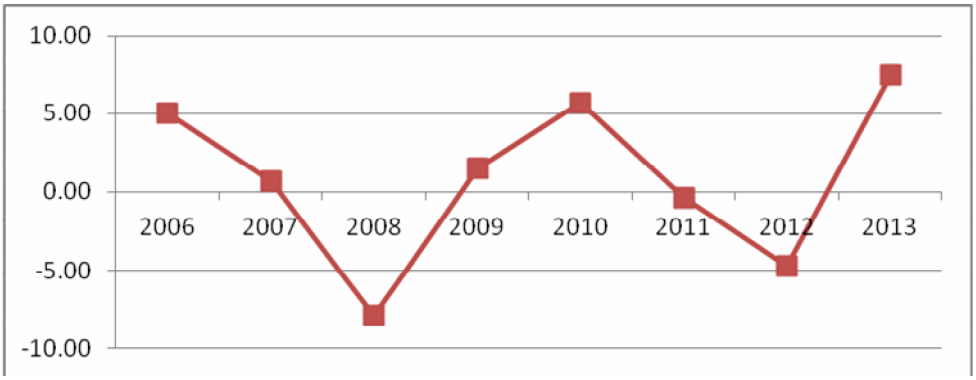

Figure 11. Dynamics of rate of increase of official average exchange rate against the Euro
Source: Prepared by author based on data NBM.

Conclusion

In the current state of socio-economic development of the Republic of Moldova actual deviations of the quantitative parameters of many indicators of threshold values indicate the degree of threat to the financial and economic security of the country as a whole. It is important not only to continuously monitor these deviations, but also to use existing possibilities to neutralize the potential negative effects.

For the Republic of Moldova efforts should be made in certain strategic directions such as: creation of conditions that allows economy to operate in regime of expanded reproduction, which means ensuring in the next decade the GDP growth rate of at least 7-10% per year; growth of population welfare, which means stable increase of their real incomes, salaries, pensions and allowances; reduction of poverty, of population migration; formation into the country of "middle class" with a high level of solvent demand; reliability of financial and banking system, and also the capacity of consolidated budget to finance social commitments of the state, should not be allowed jumps in exchange rate change of leu; sufficiency of money supply and credit resources for providing long-term high rates of GDP growth; increasing the share of manufacturing industry exported products within the structure of foreign trade; maintenance of the level of import and many other problems related to national security.

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THE TRENDS AND CHARACTERISTICS OF DEVELOPMENT OF ASSOCIATIONS OF LOAN AND SAVINGS IN MOLDOVA

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Ludmila MUNTEANU[67]

Abstract

The objective of this article is to analyze the microfinance sector in Moldova, through elucidation of the main trends of development of savings and loan associations in the past five years. The financial market in Moldova consists of banking and non banking financial institutions by providing credit and loans for meeting the financial demand. The non-banking financial institutions include: central association, microfinance organization and savings and loan associations. Therefore in the paper the author intends to analyze and evaluate the work of savings and loan associations, as reflected through the improvement of all indicators. The emergence of these institutions is caused by the need of rural microfinance sector activity, as well as the financial support for small and medium businesses namely entrepreneurship in the sphere of production, trade and services.

Keywords: non-bank financial institutions, microfinance, savings and loan associations, stability, rural sector.
JEL classification: G21, G23.

Introduction

The activity of nonbank financial institutions are complementary to those of banks, as they provide services that are not appropriate for the degree of risk that can take a bank. The competitive advantages of nonbank financial institutions derives from the fact that they can be targeted at specific sectors or group of clients to benefit both from a more flexible regulation and sometimes certain tax incentives. In addition, NFIs significantly strengthen the financial system resilience to shocks caused by economic crises.

From the scientific point of view, about the activities and characteristics of nonbank financial institutions has been studied very little, both in Europe and in Moldova, being made usually traditionally articles or monographs. In Moldova the non-banking financial institutions (microfinance sector) are: central association, microfinance organization and savings and loan associations. In this article, the authors try to outline the specific development trends of NFIs, mainly focusing on Savings and Credit Associations (SCAs).

The system of Savings and Loan Associations play a significant role for Moldovan citizens. Thus, taking into account the international practice, the process of strengthening and institutional development of the Savings and Loan associations should lead to financial independence to external sources of financing.

Methodology and data sources

The research methods used in this paper: scientific abstraction method, the method of analysis and synthesis, logic method and statistical methods. At a conceptual approach to the topic of the study were the work and publications of the famous scholars in the country. Data sources for the study constituted the legislative acts of the Republic of Moldova, which regulates the activity of the microfinace sector, statistical data of the National Bureau of Statistics of the Republic of Moldova for 2009-2013, and respectively, the activity reports of the Nationk,-al Commission of Financial Market of the Republic Moldova regarding the microfinance sector activity. The study reflects the case of the Republic of Moldova, the basic indicators of SCA are presented annually by the NCFM and with monthly delay,for the analysis were used annual data presented in MDL lei.

Brief overview of the history of microfinance in Moldova

From a historical perspective, the microfinance sector began to form in Moldova in 1997, with the establishment of the first Savings and Credit Associations (SCAs) in the Rural Finance Project, funded by the World Bank, while banks in the Republic of Moldova do not grant credit for all segments of the population, as well as the procedure for granting a loan was too complicated,

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especially for those in rural areas. Therefore, the Rural Finance Project aims to support the private agriculture sector through the development and testing of forms of citizens' banking cooperation in terms of mutual financial support, being approved by the Government. This project is focused primarily on rural population with middle and low income who received or were to receive their share of land and value. (Radu Diaconu 2011).

The following year 1998 was founded the National Federation of SCAs and State Supervisory Service. It was further established the following microfinance organizations (hereinafter OMF): Rural Finance Corporation in 1997, ProCredit in 1999 and MicroInvest in 2003. However, the system of Savings and Loan Associations in the Republic of Moldova was established in 1998. Therefore at the end of 2009 there were over 398 SCA member organizations that register 120 000 members and assets in the amount of 345 mln. lei. And in 2013 there were 340 SCA institutions registered with a volume of 403.9 million in assets, up 17% compared to 2009.

Framework for Savings and Credit Associations (SCAs)

During the period 1997-2014, the regulatory framework for the microfinance sector has been perfected by a number of laws and acts (regulations, directives, decisions) that concerns the activity of savings and loan associations in Moldova. The main difference between the microfinance organizations and savings and loan associations is that microfinance organizations are entities engaged in lending on a professional basis and do not accept deposits or other repayable funds from the public (members).

The supervision activity of savings and loan associations is exercised by the National Commission of Financial Market (NCFM), an independent body that is accountable to Parliament, including through the annual report of activity.

The main legislative act is the Savings and Loan Associations Act No. 139-XVI dated 21.06.2007, which regulates the organization and operation of associated companies on common principles that accepts savings deposits from its members, provides loans, such as and other financial services under the category of the license it holds.

Therefore, in accordance with the Law, in the year 2013 NCFM issued 300 notices for state registration of the SCA statutes in a new version. As a result of the liquidation, 5 SCA obtained NCFM opinion on removal from the state register of legal entities. On 31.12.2013 have the license to conduct business 340 SCA entities, of which: 273-A license associations, 65 associations-B license and two central associations. In accordance with the Regulation on requirements to SCA administrators, approved by NCFM no. 63/6 of 25.12.2007, NCFM examined SCA 17 applications holding a B license, associations which have obtained confirmation of the directors as required by the law.

An important tool used in the supervision of savings and loan associations are annual and special reports received by NCFM through the Information Management System (IMS).

Therefore, the outcome of policies to enforce the legislation and the protection of legal rights of SCA members were issued 148 warnings, dropping 14.5% from last year. Similarly there were also fewer the number of penalties such as the suspension of the SCA bank account transactions (43 percent reduction). The number of prescriptions issued on compliance with legal requirements, including reporting requirements, has increased of approximately 2 times compared to the indicator from last year.

The surveillance activities at the headquarters of savings and loan associations established deviations from the law, including non-compliance with financial prudence, the conduct of general meetings of members of the association and designation of directors, financial reporting requirements and other violations that led to the application of a range of measures and sanctions.

The evolution of Savings and Loan Associations (SCA) in Moldova

In recent years, the developments in the domestic microfinance sector contributes to local Moldovan labor market recovery. In 2013, 10.7% of the economically active population in Moldova has benefited from loans of the microfinance sector, represented by savings and loan associations and microfinance organizations. Respectively, 36525 people were recipients of loans from savings and loan associations during 2013 to 6% more than in 2012.

Table 1

The evolution of the number of professional participants in the non financial market of microfinance sector in Moldova in 2009-2013

Supervised entities	*2009*	*2010*	*2011*	*2012*	*2013*
Central Association	**1**	**1**	**1**	**2**	**2**
Savings and loan associations	**394**	**398**	**376**	**359**	**340**
Microfinance Organizations	**35**	**43**	**59**	**73**	**85**
Total - microfinance sector	**430**	**442**	**440**	**431**	**427**

Source: prepared by the author based on data from annual reports 2009-2013, NCFM.

In 2013, there were a total of 427 professional participants in the financial nonbank market of the Republic of Moldova, of which 85 microfinance organizations, two central associations and 340 SCA who held the license of which 302 conducted the activity. In order to provide for its members a full range of services, determined in accordance with legislation, with the category of license held by the laws and policies, SCAs have used the following sources: 1. Banking credite and received loans 206 associations; 2. Savings deposit 64 associations, of which did not contracted bank loans and foreign loans - 30 associations; 3 Own capital 80 associations.

At the end of 2013, the number of SCA increased by 255 persons or 0.2% from 2012. During the same period the number of depositors' savings indicator has decreased by 34 persons or 0.6%. The number of beneficiaries of loans amounted to 34 620 people, increasing by 1,600 persons or 4.8% compared to the size of the indicator recorded in 2012.

The trend indicators during 2003-2013 reflects the following results on the number of members, of the beneficiaries of loans and savings depositors:

- Increasing the number of members in SCA from 71 200 to 127.0 thousand persons or 1.8 times;

- Reducing the number of beneficiaries of loans from 39600-34600 persons or 12.6 percent;

- Increase the number of savings depositors from 472-5800 people or 12.3 times.

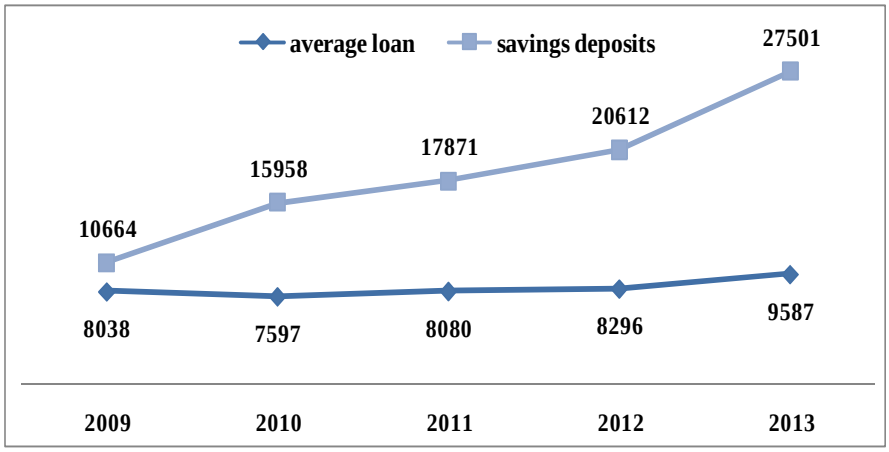

Figure 1. Evolution of average loans and savings deposits, in 2009-2013,%

Source: prepared by the author based on data from annual reports 2009-2013, NCFM

The evolution of the average value of loan that returns to a loan beneficiary member in the period 2010-2013 show a growing demand for loans from SCA. In 2013 this indicator reached an average value of 9587 lei, registering an increase of 1291 lei or 15.6% compared to 2012. In the same period the average value of savings attracted in the form of deposits, which returns to a depositor member, was 27501 lei, registering an increase in the amount of 6889 lei or 33.4% over 2012.

Analyzing the financial intermediation degree through the loan portfolio granted by microfinance entities in 2009-2013, there is a growing in the microfinance sector in the Republic of Moldova in relation to GDP, with a slight deviation in 2010 and 2011. During the year 2013 has a share of about 2.23% of GDP, of which the SCA - 0.33%, and the OM - 1.9%. This indicator is rising by 0.11 pp in 2013 compared to 2012, being influenced by a positive evolution of the performance indicators for microfinance entities by supporting the loan granting process with maximizing their turnover.

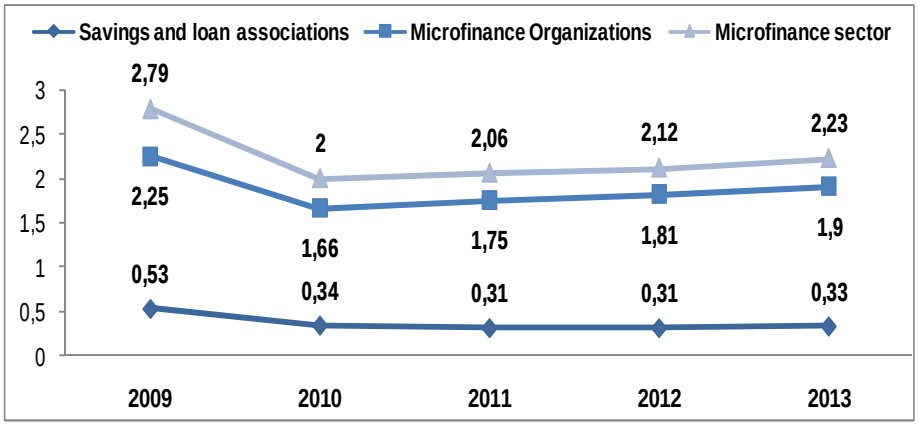

Figure 2. The degree of financial intermediation of microfinance sector (loan portfolio relative to GDP) in 2009-2013,%

Source: prepared by the author based on data from annual reports 2009-2013, NCFM.

The financing rate from deposition loans granted to savings and loan associations of category B is maintained at the level of 2012, which indicates the providing for comfortable financial independence to external sources of financing. The increase of the average value of savings attracted in 2013 is the result of increasing the amount of savings deposits taken by SCA that holds a B category by 32.7%, while reducing the registered number of savings depositors.

The efficiency of using the assets and equity capital by the domestic entities of microfinance sector has shown a rate of return of about 7.4% of them, and respectively, 19.0%, or up 2.8 pp and, respectively, 9.4 pp compared to 2012. This was conditioned by a significant increase in the net profit value approximately twice during 2013.

At the end of 2013 the consolidated SCA volume of assets constituted 403.9 million. The total volume of assets 69.7% go back to SCA that hold the B category license. The increase in consolidated assets compared with 2012 by 20.7% is due to the increase in size loans by 21.2%.

The maximum weight in the SCA structure assets go back to granted loans that make up 82.2% of total assets, a share that recorded an increase of 0.3 pp compared with 2012. Consequently, during 2013, similar to the previous year, is established a priority given by the SCA to income-generating asset to the detriment of fixed and unprofitable assets. The efficient assets share increased in 2013, registering a higher value of the minimum level recommended by WOCCU by 1.3 pp.

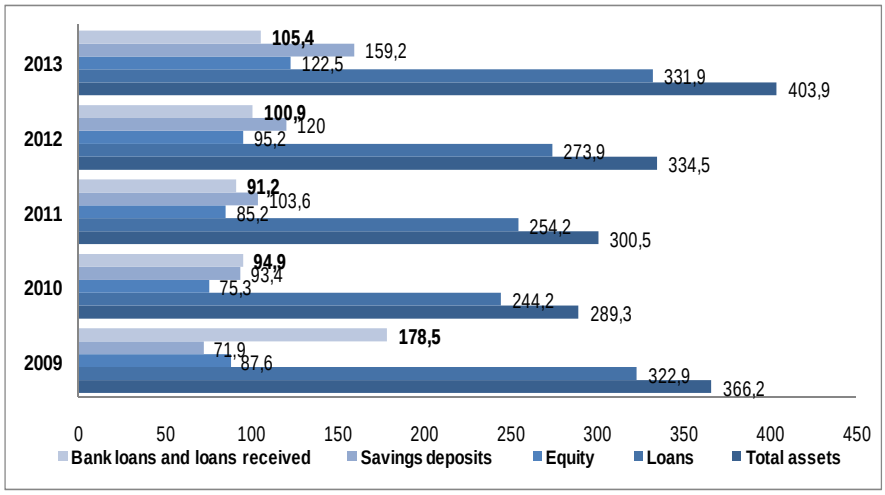

Figure 3. Evolution of main indicators of activity of SCA (MDL), 2009-2013

Source: prepared by the author based on data from annual reports 2009-2013, NCFM.

SCA reported profit in 2013 amounted to 19.6 million. The increase profit recorded 8.6 million or 78.2% compared to 2012 due to the reduction of the net result from the creation and cancellation of provisions together with the increase of total expenditures at a lower rate than the increase in total revenues. The maximum share (56.7%) of the equity value goes back to SCA that holds the B license category.

On 31.12.2013 the consolidated value of savings deposits attracted from SCA members constituted 159.2 million, increasing compared to the value of this indicator recorded in 2012 by 32.7%. In the structure of savings deposits the maximum weight (67.4%) goes back to saving deposits with maturity period between three months and one year, a percentage that has declined in 2013 by 7.5 pp for deposits with maturity exceeding one year term, and deposits with maturity up to three months.

At the end of 2013, most of the loans were granted to agriculture and food - 46.73%. Thus, in the structure of the loan portfolio granted by SCA the loans for respecting contractual conditions (standards) are 95.8% and supervised loans (overdue up to 30 days inclusive) - 1.9%.

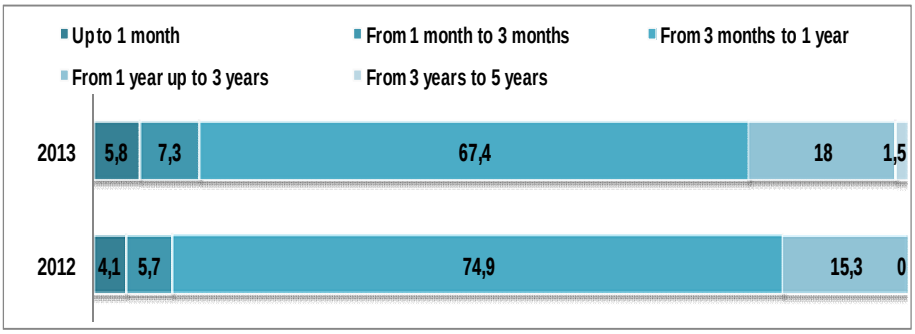

Figure 4. Share savings deposits by maturity (%)

Source: prepared by the author based on data from annual reports 2012-2013, NCFM.

The remaining loan rate is the including result of the fact that the largest share of the loan portfolio, 94.2% have unsecured loans with mortgage, which declined by 0.8 pp compared to the same period last year. The rate loans with expired term, registered by SCA that is holding a category A, is 5.0%, a level that exceeds the size of the registered associations that own a category B by 1.2 pp

The ratio of the amount of liquid assets and the value of all assets in 2013, unlike 2012, is exceeding the recommended maximum level (16.0%) for SCA that holds the B license category. Consequently, the decrease reflects adversely on the process of investment of funds held in interest-bearing assets, as confirmed by the increase of assets that do not generate income in the total amount of SCA assets and is holding the B license category.

At the end of 2013, in the structure of the loan portfolio granted by SCA, the loans for respecting contractual conditions (standard) is 95.8% and supervised borrowings (expired up to 30 days inclusive) - 1.9%.

Thus, there is a positive trend in the quality of loan portfolio, the share of standard loans increasing during 2013 by 1.9 percentage points.

Table 2.

The portfolio structure of loans granted by the SCAs in Moldova

Category	Granted loans mii lei		2013/2012 %	2013,%	
	2012	2013		SCA with A license category	SCA with a B license
Standard	257,1	318,0	123,7	31,1	68,9
Supervised	8,1	6,3	77,8	38,1	61,9
Substandard	2,3	2,7	117,4	29,6	70,4
Dubious	2,6	2,5	96,2	8,0	92,0
Compromise	3,8	2,4	63,2	70,8	29,2
Total	273,9	331,9	121,2	31,3	68,7

Source: prepared by the author based on data from annual reports 2009-2013, NCFM.

The overdue loans of rate indicator, registered on 31.12.2012, was 6.1% and at the end of 2013 this indicator decreased to 4.2% of total value of granted loans, diminishing at the same time, below the maximum set by WOCCU by 0.8 pp. The remaining loan rate is the including result of the fact that the largest share of the loan portfolio, 94.2% have unsecured loans with mortgage, which declined by 0.8 pp compared to the same period last year.

The rate loans with expired term, registered by SCA is holding a A category, is 5.0%, a level that exceeds the size of the registered associations holding a category B by 1.2 pp

The share of loans with expired term in 2013 does not exceed the recommended maximum level of 5.0 percent, recording at the same time a decrease of 4.0 percentage points for SCA that is holding a A category and 0.7 percentage points where SCA holds a B license, compared to the end of 2012. The favorable changes is due to reduction in the value of outstanding loans by 17.5 percent while increasing the value of the loan portfolio.

Although the indicator for the share of money recorded cash value that exceeds the recommended minimum for both SCA holding an A license, as in the case of SCA holding a B license, it records a positive deviation in 2013. Simultaneously, the indicator that reflects the ratio of book of liquidity and the value of savings deposits recorded negative deviation in 2013, but exceeding the minimum recommended level.

Conclusion

Difficult access to finance in Moldova serves as a current constraint which collides the entire SME sector. Thus, microfinance is a powerful tool against poverty. The access to sustainable services from the financially point of view enable the poor to increase income, build assets and reduce vulnerability to external shocks. Microfinance allows poor households to move from everyday survival to planning for the future, investing in better nutrition, better living conditions. The emergence of these institutions is caused by the need of rural microfinance sector activity as well as the financial support for small and medium businesses namely entrepreneurship in the sphere of production, trade and services.

The final conclusion of the authors of this paper would be: accession to the socio-economic structures of the European Union means reforming the fundamental structure of the economy, often difficult, slow and contradictory, the socio-economic stabilization and long-term steady improvement in the economic competitive environment.

Consequently, the Moldovan economy must produce substantial improvements in terms of economic potential, the behavior of economic agents, the force of products and farmers competition and not least the institutional and administrative capacity with special treatment for rural areas. Otherwise there is a risk that the Republic of Moldova will become, yet a certain period of time, mainly a market for food products in the EU, in which the native farmers would be exposed to the practice of primary agriculture for subsistence.

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INSURERS FUNDS AND THEIR IMPACT ON THE ECONOMY

Cristina UNGUR[68]

Abstract

Insurance companies have significant net flows of cash, stemming especially from insurance premiums paid by clients. These funds are an important source of stable funding for public authorities, SMEs, banks and other companies. In this article we present the dimensions of funds held by insurance companies and show the impact of these funds on an economy. We will focus on the role of insurance as a provider of long-term financing, but also on their importance in reducing economic uncertainty, their contribution to maintaining social stability and support innovation.

Keywords: insurance, investments, financial market

JEL classification: G10, G22

Introduction

According to the practice of developed countries, insurance proves to be a sector with influence on many areas, both economic and social. The importance of insurance can't be measured only by the number of jobs they create, the amount of assets they manage and its contribution to GDP. The insurance have a fundamental importance to modern society, because it is absolutely necessary for activities that can't be practiced in the absence of insurance.

Firstly, the insurance promote stability and financial security at both national and personal level. Secondly, the insurers are institutional investors serving to mobilize savings and provide opportunities to use them effectively.

At the same time, the insurance facilitates the credit system by ensuring financial security in cases of credit beneficiaries' bankruptcy. Because of their ability to mitigate the consequences that may arise from financial challenges, we can say that the insurance have a role of stimulator of investments and facilitate international trade of goods.

The insurance covers the damages caused by insured risks, making possible the reconstitution of destroyed goods, thus ensuring the continuity of the production process.

The insurance positively influence the Balance of Payments of the country and contribute to developing the international economic relations when the insurance companies, in addition to direct insurance, makes the reinsurance operations, too (i.e. when some of the underwritten risks are transferred to the other insurance companies with premium payment).

Description of the problem

Insurance is an economic mechanism of protection, savings, fructification, and prevention. The importance of the insurance derives from its functions, which have a reflection on the society and on the economy. Knowledge of these functions is very important to acquire the role and influence of insurance on an economy (Lael Brainard and 2008).

The insurance mechanism works in a way that determines its effects to be felt both at the social and at the financial level. It is important to know the quantitative dimensions of these effects. When you mention that the insurance is an economic sector which adds value and creates jobs is necessary to present the estimation mechanisms of these dimensions.

The purpose of this article is to present the role and importance of the insurance for a country's economy. To achieve this objective it is necessary to establish the destination and contents of the insurance in the economic and social activity. It is also necessary to determine the economic potential of insurance and its possibilities of using. In this sense, the main incidence of the insurance on the economy are the long-term funds that can be invested to ensure a sustainable economic development.

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Methodology and data sources

For research carried out in this study were used descriptive, analytical and statistics methods. The main indicators were taken from statistics provided by the Organization for Economic Co-operation and Development (OECD, 2014), the European insurance and reinsurance federation (CEA, 2014).

Unfortunately, European statistics show delayed data. Even in reports published in 2014, the indicators are calculated only for 2012. This due to the difficult collection of statistical information from all the countries included in the reports. There are countries which delay the presentation of data. And once set, these data require processing and analysis may also take more than one year.

The research is based on the case of Moldova and for analysis were used data from National Bureau of Statistics and reports of the National Commission of Financial Market of Moldova. There is a difficult in comparing data related to foreign exchange differences. Statistics of the Republic of Moldova are made in MDL, and the European ones in U.S. dollars or euros which may deviate insignificant. However, official data are used here, and currency conversions are done at the official rate of the National Bank of Moldova.

Functions of the insurance

Most often in the literature meets the description of the four basic functions of the insurance. However, there are opinions of some scientists (Grishchenko, 2006, pp. 15-16) that the insurance functions are grouped into six categories. In the following we analyze all the types described in economic research to highlight the role of the insurance in the activity of a country.

The main generator and promoter of the insurance is the risk that's why the basic function of the insurance is the *hedging function* which presents interest both for the insured and for the economy of a country. This function consists in the funds formation and the compensation for damages. It can be found in the literature also as the *damages compensation function.* The insurer pays the insured amounts, thereby compensating losses in cash. For the insured, the insurance give a safety regarding the protection of property and life. Regarding the national economy as a whole, the insurance can not prevent damages, but, by fast according of compensation, it can offer, in a relatively reasonable time, the possibility to recover the conditions for productive activity or work capacity for injured people.

Risk prevention function. Insurers are able to use some of the insurance premiums paid by clients to create a fund designed to minimize the probability of occurrence of the insured risk and to reduce its consequences. Usually these actions are stipulated in the activity plan of each insurance company.

On the one hand, insurers have sufficient resources to undertake measures to prevent risks. An example of this could be vaccinating people who bought a health insurance. On the other hand, policyholders are forced by insurers to take measures to prevent risks, for example, the requirement to install car alarm to prevent theft of the insured car. In case of fire, when the insured do not take security, protection and prevention measures, they pay higher insurance premiums and sometimes fines.

Financial function - is determined, on the one hand, by the fact that not all insurance policies has as a result the production of the risk, and on the other hand is determined by the gap in time between receipt and time of payment of the compensation. Thus insurance companies invest the funds received from the insurance premiums and increase existent liquid assets. The difference between receipts and payments can be used as a general source of credit in the economy, being established in deposits or in the liquid assets at the banks.

In some sources (Bistriceanu, 2006, p. 225) financial function is exposed as a *distributive function* which is manifested primarily in the formation of the insurance fund by the insurance premium paid by persons covered in insurance. Secondly, this function is manifested in the directing of its insurance fund to legal destinations, namely claims payment, preventive actions financing, administrative expenses of insurance companies and creation of the reserves funds. By distributive function the taxes owed by insurance organizations are directed to the state budget and social insurance contributions payable are directed to the state social insurance budget.

Control function. In the insurance companies there are specialized departments for identifying of the causes producing damage and the formation, distribution and management of insurance funds.

Control function seeks to detect the causes that cause damages, to avoid them in the future. Also, by this function is following to establish and correct collection of the insurance premiums, finding, evaluation and settlement of claims, timely payment of the compensation and of the insured amounts. Control function is manifested by determining the rights due to policyholders and the full and timely fulfillment of financial obligations of the insurance company.

As we mentioned above, in addition to these four basic functions described in most of the works studied, there are other opinions. Thus, we met the following insurance functions:

Saving function. Insurance companies accumulate funds to provide a certain level of the clients' welfare. With the expiry of the contract, for example in case of survival in a life insurance, money accumulated during the annual premium payment returns to the clients and represents a saving for clients.

Investment function. By focusing a significant amount of financial resources in the form of insurance funds, insurance becomes one of the largest sources of investment and thus contributing to development of industry and the overall economy.

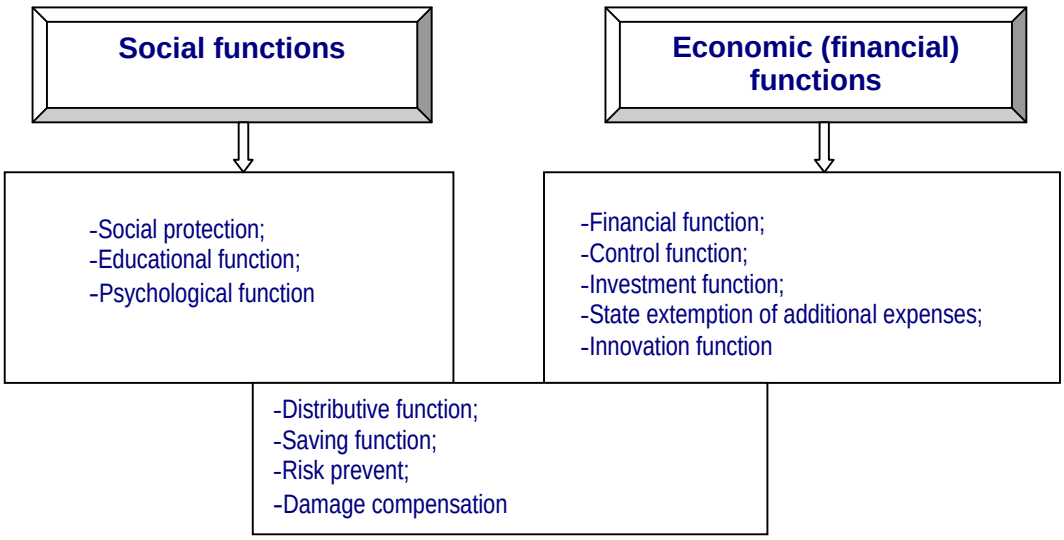
Innovation function. Due to the risk compensation, the insurance contributes to the scientific and technical progress development and to the new technologies implementation.

Social protection function is manifested in the creation and operation of the insurance funds by the state, in case of state insurance, or by insurance companies, in case of commercial insurance. Near this function is the function of population welfare ensuring which has important psychological effects because it gives "peace of mind".
A developed insurance system has the *function of the state exemption of additional financial expenses* which may arise due to the destructive events. In the absence of insurance, compensation for all the damages was the public budgets burden.

The insurance is not only a financial and economic category, is at the same time an institute of law, because, as the law in general, it fulfills the *educational function*. The rules of law provide for members of society a proper behavior. Rules of law governing insurance also stimulate proper behavior of the subjects of insurance it happens by the establishing privileges and sanctions.

From the analysis, we propose a new system of grouping insurance functions in Figure 1.

Figure 1. Insurance function



Source: elaborated by the author

The grouping shown in Fig.1 is an attempt to highlight the double importance of insurance. Thus, insurance will be charged not only as a financial mechanism on the market, but also as an important instrument to ensure the financial stability of the population.

The incidence of insurance on the economy

Next we analyze the most important aspects of the existence of insurance developed in an economic system.

The easiest and the most obvious aspect of the insurance as economic sector is that *insurance creates jobs*. According to OECD, the number of employees in the insurance industry is significant. For example, in Germany there are about 126 625 employees in insurance in Italy - 40798 in Korea - more than 62 000 (OECD, 2014). Based on other sources the number of employees in the insurance companies across Europe is about 1 million (971 971) in 2012, down compared to 2010 when the number was 1,005,927 employees (CEA, 2014, p 59).

In addition to providing employment for a considerable number of people, insurance is a relatively *profitable in terms of salary*. According to the latest data of the National Bureau of Statistics of the Republic of Moldova, employees of insurance and financial spheres have average monthly wage about 7963,7 lei. Comparing with the average salary in the Moldovan economy for the same period, which is 3912,4 lei, we find that persons engaged in financial and insurance activities have monthly earnings twice higher than the average in the economy (NBS, 2014). There are sources that the average salary of a Canadian insurance agent reaches 40603 dollars annually (6). In the United States the average salary of an employee's insurance is $ 63400 that is $ 30,48 per hour (5). These figures show convincingly that insurance sector is profitable for employees.

Insurance is an industry of *creating added value*. To explain this aspect of insurance, first we will determine what means gross output of insurance industry. It seemed at first that the gross output of the insurance industry should include insurance premiums. However, this point of view is only partially correct because from all the elements that make up the insurance, only the remuneration of insurance activity represents the gross production.

Remuneration of the insurance activity is the difference between the earned premiums and the pays (allowances). Remuneration of the life insurance activity is the difference between premiums collected by insurers and allowances paid plus the net balance of the technical reserves, minus the interests of these reserves. The technical reserves include properly the insurance reserves established to cover the insured risk and amounts of the life insurance savings.

To obtain the gross added value in a branch is required to deduct intermediate consumption from gross output. In turn, intermediate consumption of insurance companies includes rents, office supplies, telecommunications expenses, travel expenses, maintenance of the building (heating, water, lighting) and low repair costs.

All interdependencies described in the assessment of the insurance as a branch which creates added value can be expressed by the following mathematical relations:

$$VAB_a = PB_a - CI_a \quad (1)$$

where: VAB_a – gross added value of the insurance;

PB_a – gross output of the insurance industry;

CI_a – intermediate consumption of the insurance companies.

$$PB_a = PI - I + SNRT - D \quad (2)$$

where: PB_a – gross output of the insurance industry;

PI – insurance premiums;

I – allowances paid by insurer;

SNRT – net balance of the technical reserves;

D – interests of technical reserves.

In our opinion, the most important role of insurance is participation at the *capital supply* process on the financial market.

To honor its obligations to policyholders, insurance companies have a duty to make the insurance reserves. They are gradually, because the receipt premiums are also gradually and are maintaining in the insurer management for long term, especially in the case of life insurance.

The fructification of the insurance premiums and claims reserves is done by placing them in stocks, bonds or shares of the commercial companies in treasury bills, bonds or other documents of state loans, long term deposits on banks, granting loans for insured from life insurance amounts, the

purchase of the real estate. The insurance funds deposited on banks are the sources of credit to serve the national economy and thus contribute to social production.

This function of the insurance is outlined the investment opportunities of the insurance companies. For each insured case, the insurers make reserves to honor its obligations in the case of sinister. In some cases, payment of the compensation does not take place immediately after the risk, but only after determining the circumstances of the event, estimating damage and insurance claims. Even if the insured amounts are not paid immediately, it still must be reserved. Therefore, we arrive at a situation where insurance companies have funds which are temporarily free and can be invested to bring added value.

To understand what size we are talking about is necessary to mention that according to the NCFM Report 2013 (NCFM, 2013), insurance companies in Moldova had insurance reserves amounted to 1042.2 million MDL. At the official rate of the National Bank these reserves are 58.02 million euros. Compared to 2010, the technical reserves made by Moldovan insurers were doubled which showed a tendency to increase their potential.

The investment policy of each insurance company depends on the created reserves, the investment opportunities available on the financial market and the regulatory framework that stipulates a certain level of liquidity which is necessary at any time and stipulates the proportions of investments in various categories of assets. In Moldova, this kind of provisions is stipulated in the Regulation on solvency margins and liquidity ratio of insurers (reinsurers) approved by the NCFM no. 2/1 of 21.01.2011. The local companies can place their assets in government securities in any amount, and 40% can invest in bank accounts, land or buildings. The other admitted possibilities are less significant as a share.

In European Union countries, about 50% of insurers resources are invested in the government bonds and the investment funds are about 8.4 trn euros, according to the CEA data from 2012 (CEA, 2014).

As we mentioned, insurers have significant net flows of money available for investment. These resources results from new insurance premiums paid by clients, from available assets or income from investments. The constant capability and the need to invest transform the insurers into major suppliers of stable funding for governments, businesses and for households.

The insurers offer long-term financing, most commonly through the capital markets. More than 50% of European insurers' assets are government and corporate bonds. Moreover, insurance companies hold 18% of their assets in public equity. Through these investments, the insurers play an important role in filling the financing needs of governments and enterprises (see Figure 2).

The insurers are those who support innovation through investing in private equity and direct lending to SMEs. However, the insurance companies are major funders of public projects, namely by investing in infrastructure. The owning of long-term funds is important for the economy because it allows businesses and governments to engage in large projects that require several years to be complete or to become profitable.

Besides long-term funds holding, insurers play a role of countercyclical instrument in the period of crisis on the market. This role is activated by a steady stream of premiums. As shown in Figure 1.5, the insurers recorded stable flows of gross written premiums which allow them to hold or even buy temporarily undervalued assets during the periods of market downturn.

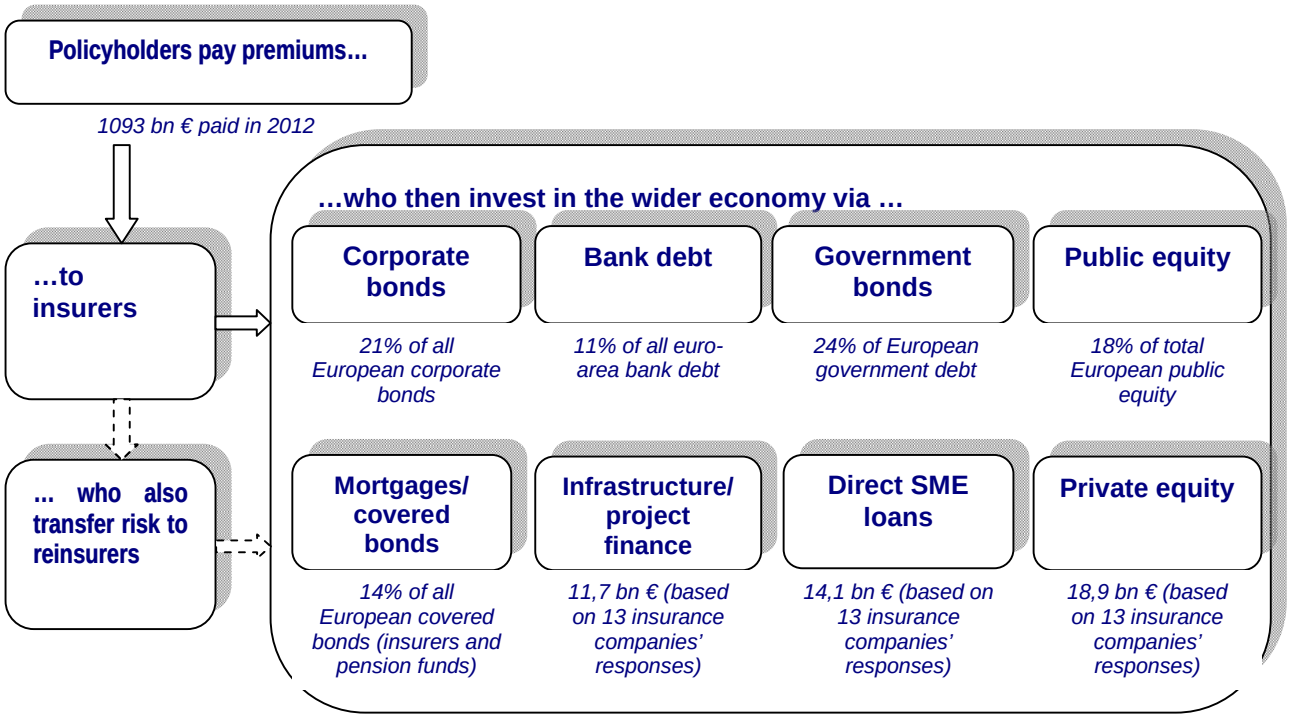

Policyholders pay premiums...
1093 bn € paid in 2012
...to insurers
... who also transfer risk to reinsurers
...who then invest in the wider economy via ...
Corporate bonds
21% of all European corporate bonds
Bank debt
11% of all euro-area bank debt
Government bonds
24% of European government debt
Public equity
18% of total European public equity
Mortgages/ covered bonds
14% of all European covered bonds (insurers and pension funds)
Infrastructure/ project finance
11,7 bn € (based on 13 insurance companies' responses)
Direct SME loans
14,1 bn € (based on 13 insurance companies' responses)
Private equity
18,9 bn € (based on 13 insurance companies' responses)

Figure 2. The investment structure of the European insurers

Source: elaborated by the author based on European Insurance in Figures 2011-2012

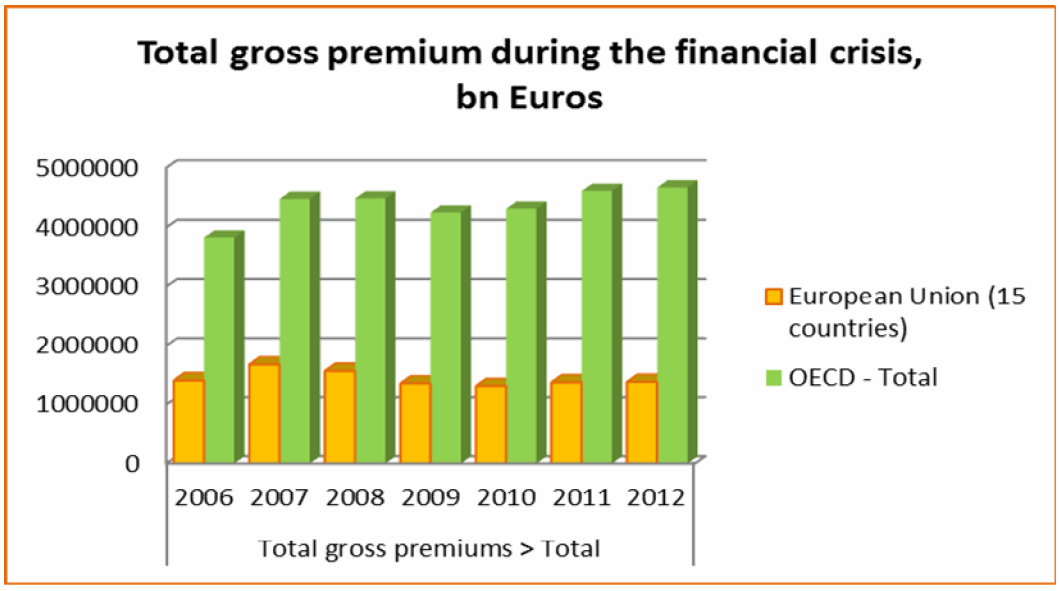


Figure 3.The premiums flow during the financial crisis
Source: elaborated by author based on OECD, http://stats.oecd.org/Index.aspx?DatasetCode=INSIND

In terms of the financial role, insurance not only gives to public authorities, companies and banks a significant amount of financial resources, but also *participate in a process of non-monetary financial intermediation*, with positive effects on the stability of the national currency.

The monetary funds attracted by the insurance companies are used to increase productive capital of the commercial companies or for coverage the public budget deficits. In both cases, the flows of financial resources invested by insurers do not increase the money supply, but only redistributes it. In the first case, insurers contribute to strengthening monetary equilibrium by converting the money in the production capacities. In case of public deficits covering, the insurers absolve the government from extra monetary emissions to cover the deficit.

The insurance companies practice the reinsurance operation for transferring some of the underwritten risks to the other companies, or they get underwritten risks from the other companies.

As reinsurers are often international companies, premiums, commissions, compensation, etc. are paid in foreign currency. All these currency flows are recorded in the balance of payments of the country, therefore we can say that insurance companies sometimes *have a positive or negative influence on the balance of payments* of the country.

Besides those listed, the insurance plays a role of *reducing the economic uncertainty* and is a way of return to work in case of temporarily interrupted activity. The essence of insurance is to transfer the risk. Someone being under the risk of an event that could possibly cause damage, transfer the consequences of that phenomenon to the insurance company for an amount of money. The risk does not disappear, but its effects are transferred from the insured to the insurer.

In the event of some negative phenomena, that could challenge the damages, the insured is entitled to choose between self-protection and the protection offered by an insurance company. The future becomes more obvious when the insured knows exactly how financial effort requires the protection of his property. For entrepreneurs, insurance is a cost of production, and in the case of individuals, it is an element of budgeting expenditure. In both cases, paying for protection from the negative effects of risk is a stabilizing element of financial risk.

By means of insurance, damages are no longer the burden of those who suffered, but are an expense distributed over all policyholders. Therefore, people who have suffered financial loss may recover quickly and by this way the insurance becomes a easy *way to fast recovery of the interrupted production process*.

Conclusions

The insurance is an important economic category for the activities performed in an integrity economic system. Due to the funds formed by the premiums paid by clients, the insurers become the important players on the investment market. The lending capacity and the ability to long-term financing contribute to the business or the economy as a whole. In the same context, the insurance is the main provider of certainty for business and for family life. By the specific cash flows and by their distribution according to the principle of mutuality, the insurance contribute to the continuously production process. Following the reinsurance operations on the international insurance market, is made a contribution to the expansion of the international trade and is influenced the balance of payments.

Therefore, the insurance helps to create conditions for economic development by protecting and defending private and public integrity, by ensuring the continuity of production processes, but also by supplying long-term financial resources.

At the same time, the insurance have a major socio-economic importance due to the job creation, the contribution to the added value growth, the people education in order to protect the property and providing psychological comfort and peace.

So, the insurance have a big economic, social and financial importance which causes the increased interest on the research of this mechanism, in particular the ability of insurance companies to finance and credit, because the share of the financial aspect is still the highest. Support and contribution to the development of the insurance market should be a key priority for the government, especially in poorly developed countries such as Moldova where the insurance market is just at the beginning.

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INTERNATIONAL ECONOMICS AND FINANCE

CHINA - THE MOST IMPORTANT AND RECENT FINANCIAL AND MONETARY GROWTH POLE

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Edith Mihaela DOBRE[70]

Abstract

Some historians marked the year 6000 B.C. as the dawn of Chinese civilization. The way which the history of this great country of the planet it was developing in the last 65 years is the premise of the demonstration made by China, which has become - in our opinion - the most important and recent financial and monetary growth pole of the planet. This study is dedicated to presenting the premises of these last 65 years, which allowed the rise unprecedented in the contemporary era of financial and banking system of this large country in the world today - China popular - currently under demonstration in our study - the main force financial and banking planet.

Keywords: financial strength and banking; financial and banking growth pole, wise policy reference rate, original policy and financial investment banking, foreign exchange reserves of the planet.

JEL classification: A10, A12, G00

The last 65 years - a sequence of history 8 millennia of China

On October 1, 1949, at Tiananmen Gate in Beijing, Mao Zedong proclaimed the People's Republic of China. Since then, the military hostilities Kuomintang (KMT) has stopped. Nationalists retreated to the island of Taiwan (Formosa) and has formed the Republic of China. The lack of an armistice or an peace treaty has generated controversy about the relationship between the two countries; before their leaving , the nationalists took with them the treasures of gold reserves and the main palaces in China.

For communists, the triumph of victory was accompanied by the national construction task. Land reform, new laws, nationalization of the means of production after the Soviet model, the projects nationally and the mobilizing the people gave the expected results; industry has been copied also after the Soviet regarding model of five-year plans, wunian Jihua, while collectivist plan has governed the production in rural zone.

Confident in the policy that promote it, Mao finally has charmed the chinese's hearts and he sanctioned the Hundred Flowers Movement (1957), which has encouraged the criticizing of the policy Chinese Communist Party (CCP) by the intellectuals, with the Maoist dictum "letting a hundred flowers to bloom, will be let a hundred schools of the state to be affirming". A large mass of people must had to deny the motion and had to seeing their careers destroyed, while others were deported to labor camps.

Towards the late 50s of last century, searchings for the ideological purity have led to greater radicalization of Chinese society. Great Leap Forward, dayuejin dictated by Mao in 1958 was a victory of the economic idealism beyond common sense, made realizing the divisions in the party and has led the China to poverty; the obsession for odds has led to artificial production figures, huge economic inequalities and mass starvation. In the 60s was happened the Sino-Soviet split, with the freeze of the Soviet aid, as a result of Mao's anxiety to the revisionist nature of the Soviet Union, which had was exercised at that time by President Nikita Khrushchev. China has strengthened the ideological evidences at that time through, The Great Revolution Cultural People's, which held between 1966 and 1976; with desire to modify the most old consciousness of the nation's, the "cultural revolution" attacked the Four Olds: old culture, old habits, old thinking and old ideas.

The objective was the eradicating the traditionalist China's non-socialist; today, when we see with objectivity and having another historical experience, we can not deny the force which had for mainland China, the People's Great Cultural Revolution.

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Young ideologues CCP has launched a wave of terror and China radical's has been auto destroyed with the sharp weapons of the confessions and the criticisms; the anciens standards of Confucianism were overthrown: young people has criticized the elders, and teachers and other intellectuals were driven to work on farms, Buddhist temples, Taoist and Confucian were destroyed or desecrated and - limit! - Monks who lived there were educated in Maoist doctrine. Mao Zedong, the first secretary of the CCP and the Chinese People's President became the subject of a shameful cult of personality and the little "Red Book" became the Bible of the youth.

Liu Shaoqi and Deng Xiaoping were both categorized as "builders of the capitalist path" because they, offered solutions rectifiers, of common sense, in compared with the excess popular Maoist. Liu Shaoqi, died in exile in Hunnan Province where been allegedly imprisoned, while Deng Hiaoping eventually became leader of China.

In the mid-70s, China has tried to return to normal life. Premier Zhou Enlai, which has let as his successor on Deng Xiaoping, struggled to restore balance, and China has found its rightful place in the United Nations (1971). U.S. President Richard Nixon visited China (in 1972) and he has repaired the Sino-American relations, been visited the Great Wall - the Chinese millenary symbol. Death from cancer of the popular Zhou Enlai in 1976, the death of Mao Zedong, blaming the Group of Four, led by Jiang Qing - wife of Mao, the Cultural Revolution, allowed the application of reform ideas of Deng Xiaoping when Chinese President and CPC were held by Hua Guofeng. Ideological concepts have been replaced by more pragmatic solutions: in the 80s appeared five Special Economic Zone - Shenzhen, Zhuhai, Shantou, Xiamen and Hainan Island, which was inaugurated by Deng Xiaoping; these were enjoyed special economic regimes outside the socialist economy, attracting foreign investment, so necessary for the development of any state.

Today, mainland China and Taiwan have close economic ties, although high-level talks between their heads of state have not yet occurred. Hong Kong's future was decided by the Sino-British understanding of 1984, which guarantees that the economy capitalist type and this model will be for at least 50 years after his return under Chinese sovereignty - which took place in 1997; Portugal has prepared a similar agreement for the return of Macao - was occurred in 1999.

Western exegetes of China after Marco Polo, especially those dating from the XIX and XX century did not know and did not understand well enough the heroism and unique creative genius of the Chinese people. China the beginning of the XXI century, has building her universal power based on the largest population of state of the planet - about 1.3 billion people, an economy whose rate growth, in the last quarter century - the longest period of this kind of history - was about 10 percent annually, leading to second place in the economic ranking of the world's countries, and based on the profound changes of mentality and consciousness of Chinese citizens, now present in large numbers all over the planet.

At the XVIII Congress of the Chinese Communist Party (CCP), which was held in November 2012, Hu Jintao, general secretary of the CCP Central Committee and Chinese President made a comprehensive scan of contemporary Chinese society and presented considerations particularly important about the following issues: 1. development unbalanced, uncoordinated and unsustainable; 2. Weak capacity for innovation in science and technology; 3 Unbalanced industrial structure; 4. Poor agricultural infrastructure; 5. Resource constraints environmental became more severe; 6. Systemic barriers that impede the development of scientifically; 7. Tasks regarding the deepening of reform, openness and changing the growth model; high growth and income differences between town and rural and between regions; 8. Marked increase in social problems; 9. Lack of ethics and integrity in some areas; 10. Some officials are not proficient in the development based on the science; 11. Some local party organizations are weak and relaxed in addressing problems; 12. The formalism, bureaucracy, extravagance and wasting are serious problems; 13. Some areas are prone to corruption and mismanagement, the fight against corruption is a serious challenge for the party. Based on these problems, the Chinese president stressed the guidelines of these areas of great importance to the Chinese society in the future five-year (2013-2017).

Chinese Banking Growth

An important saving the planet, which is currently the Chinese one, can build only on a banking sistem which are very serious and very competent on his turn. On the list of major Chinese banks are institutions such as the Industrial and Commercial Bank of China - the largest bank in China; Agricultural Bank of China; Bank of China - the largest bank in the foreign trade of China, known in

international banking circles; China Construction Bank - a leader in the mortgage; Bank of Communications and Postal Savings Bank of China.

The decision to relax the monetary policy is aimed at "ensuring adequate liquidity in the banking system and promote stable growth of credit so that monetary policy to play an active role in supporting economic growth.

In early 2004, China has taken the first important step to prepare the privatization of state banks as public offerings of equity through a capital injection of $ 45 billion in two of the six banks, cited above, which were at that time under government control 71. Were chosen Bank of China and China Construction Bank for capital injections that brought an refreshes and these have discontinued long series of bad loans in the history of those institutions. "Under the reform plan, are expected that the two banks has been solve their problem regarding the bad assets and establish a solid financial foundation, along with a set of strict financial standards," declaredthen Xinhua, the official Chinese, to news agency. The public offerings of capital for banks privatization have attracted, as was only natural, the attention of international investment banks; capital offering was a success, has prepared these banks for competition with international banking institutions, opened the Chinese banking sector to international banking environment ensuring China's entry in 2006 into the World Trade Organization.

Non Performing Loans (NPL) of the six banks's accounted for 20 percent of their banking assets, according to official announcements, but independent estimates thought that figures was double; after capital investment of 45 billion, NPL ratio fell to about 10 percent of total loans (it is know that listing banks on international exchanges, this rate should be written with a single digit).

Like other sectors of the Chinese economy, the bank sector has grown and developed into high gear. Ma Delun, deputy governor of the Central Bank of China announced in early 2008 are in circulation in China, 1.47 billion bank cards, credit cards or debit cards. The bank credit sector is growing rapidly.

In the past months "money does not arrive in China from the September (2011 - n.n.) and April (2012 - n.n.) actually began to leave the country. Is absolutely unusual. To prevent strengthen the yuan too much, China does not allow speculators to buy the currency. From mid-2010, the Chinese government were allowed ordered the strengthen of yuan to against the dollar, but in the last month (May 2012 - n.n.) as the economy entered the crisis began to depreciate the value of the yuan again[72].

Foreign exchange reserves of the planet

Currently, China has the largest foreign exchange reserves of the planet, gained one state - over 2,000 billion dollars; the end of December 2007, China's foreign exchange reserves were U.S. $ 1.530 billion (in this way, the annual growth rate is over 25 percent, perhaps the greatest in the world ...). Fueled by the trade surplus and foreign investment Durect, China's foreign exchange reserves have become the largest in the world in early 2006; runners in the world ranking ranges Japan and Russia. In mid 2009, China's foreign exchange reserves stood at $ 2.132 billion; some of this money will be allocated, Chinese Premier Wen Jiabao announced for Chinese companies expanding internationally through investments and acquisitions.

China's foreign exchange reserves, already the largest in the world, have come to the end of 2009 amounted to 2399.2 billion, increasing by 23.28 percent by the end of 2008, China's central bank announced. China's foreign exchange reserves are powered by commercial surpluses recorded most important Asian economy and foreign investment flows. In late March 2010, foreign exchange reserves had reached a record of $ 2.447 billion, gold reserves were still then 1,054 tons.

China has invested most of its reserves in dollar-denominated assets, such as U.S. Treasury bonds, considered as safe investments, but with a lower return. For several years China is trying to diversify investments, but at the end of October 2009 was the world's largest holder of U.S. bonds. According to figures provided by the U.S. Treasury in October 2009, China held treasury bonds worth 798.9 billion dollars, a small decrease from 800.5 billion dollars in July 2009. China is also the most largest foreign holder of U.S. debt, with over 1.160 trillion dollars. 2.250 trillion dollars in

[71] Cătălin Ciocan, Chinezii pompează 45 miliarde dolari pentru a-şi cosmetiza băncile, în Ziarul Financiar, 7 ianuarie 2004, p. 7
[72] BBC Mundo, Se dezumflă economia Chinei?, 6 iunie 2012

foreign reserves of China, which amounted to 3.200 billion are in U.S. currency. Chinese leaders including Premier Wen Jiabao, have repeatedly expressed their confidence in the eurozone. About a quarter of China's foreign exchange reserves are in euros, according to analyst estimates.

China has adopted a prudent monetary policy in 2011, to a moderately relaxed position in 2010, as announced at the beginning of December 2010 the Politburo of the Central Committee of the Chinese Communist Party. The credit was limited to 2011-7500 billion yuan (1.400 billion), compared to the record level of 9590 billion yuan in 2009. Except in the first two months of 2011, Chinese banks already borrowed 28 percent of the target set by the government and communist Party. Vice Governor of People's Bank of China (PBOC), Zhu Min, appreciate that moderation in this case would be extremely welcome.

The Chinese authorities have committed to maintain proactive fiscal policy of the country, an indication that the government wants to continue to strengthen investment expenditure and at the same time to take measures to contain inflation. "In the past we have seen clear emphasis on administrative measures. In future they will be used more price adjustment measures through interest rates, "said Ken Peng, who also estimated that the benchmark interest rate will rise gradually PBOC. In October 2010, the PBOC raised for the first time since 2007, the reference rate to counter increasing real estate prices. The Central Bank of China announced an increase of 0.5 percentage points in the minimum reserve requirements of commercial banks for the fifth time in 2010 to stop rising inflation and housing price increases.

Gold will not be a priority for Chinese investment and huge foreign exchange reserves of the state announced in mid-2010, official sources in Beijing, saying that the yellow metal has offered little advantage over the last 10 years and that although gold offers protection against inflation, this role can be played, and other assets; high cost of storage and price volatility in the international market are the main reasons that led to the decision not to grant priority gold reserves as a means to the Chinese state.

Wise policy reference interest and exchange rate

Since 1991 until now, China has recorded an annual rate of economic growth of 8 to 14 percent, except during the Asian crisis of 1998-1999, when growth slowed to 7.8 and 7, respectively, 6 percent. This was possible through clever manipulation of the value of the reference rate of the central bank. Since 1 December 2008, the reference rate of the People's Bank of China (PBOC) was reduced from 6.66 to 5.58 percent; it is the largest reduction in benchmark interest PBOC adopted in October 1997 after Black Friday. crisis in the international financial and banking, the People's Bank of China cut twice in three weeks consecutively reference rate (end September-early October 2008), to the value of 6.93 percent73.

People's Bank of China, the central bank of the country in early 2003 denied rumors about a long-awaited decision of the monetary authorities of the planet on yuan appreciation, "reports that China's central bank will revalue the yuan by 5 percent and begin to take steps to reduce interest are unfounded. These ideas are not realistic because the current way of quoting Chinese currency is based on economic development and national companies' ability to cope with currency fluctuations "; recall that the yuan was then fixed quote 8.27 units per U.S. $ 1. According to the sources, China already applies a fluctuation based on market supply and demand and thus managed to maintain the stability of the national currency, which gave the country can withstand the Asian financial crisis (in 1997-1998 - Ed) and helped the rapid and healthy growth. Central Bank also announced on the occasion that the process of making the yuan fully convertible currency and develop a foreign exchange market will be progressive.

In mid-August 2008, China achieved a currency U.S. dollar dependency as a measure to protect its exports. Lower the reference rate in November 2008 was the fourth consecutive mid-September 2008, in an attempt to limit the impact of the international financial crisis on the Chinese economy. Different countries of the world calls for an appreciation of the yuan are unnecessary and even show some form of protectionism, said Chinese Premier Wen Jiabao. "External pressures are

[73] prin comparaţie, în aceeaşi perioadă de timp, alte bănci importante ale planetei au redus astfel dobânda de referinţă: Fed la 1,5 la sută; BCE la 3,75 la sută; Banca Canadei la 2,5 la sută, Banca Marii Britanii la 4,5, apoi brusc la 3 la sută, cea mai mică din ultimii 70 de ani!; Banca Japoniei a menţinut-o constantă la 0,5 la sută.

useless in the level of the yuan exchange. Our efforts to maintain the stability of the yuan have made a major contribution to global economic recovery, "he said.

"Beijing will keep the exchange rate of the national currency stable at a fundamental level," said Chinese Premier Wen Jibao, in a speech to the National Assembly of People's China, in April 2010, after the first months of this year, the partners China's trading primarily U.S. denounced the overvaluation of the yuan. Also, Chinese Premier assured that the government will take measures to keep inflation under control (at 3 percent per year), while China adopted stimulus measures worth 586 billion dollars and stimulated bank lending to help the country overcome the global economic crisis.

Beijing's efforts to install the yuan to rival the dollar have been some significant progress in 2009 and 2010: the end of 2009, China launched its first international offering of Eurobonds and then signed currency swap agreements bonuses worth $ 100 billion with six countries, including Argentina, Indonesia and South Korea. Yuan became the official currency in Southeast Asia, but also for other countries such as South Korea, India, Japan, Pakistan and Russia.

Regarding China's new monetary policy, it will lead, according to experts at a moderate and gradual appreciation of the yuan, with direct impact on long-term price. In mid-2010, the Central Bank of China announced that it will increase the flexibility of the yuan exchange rate and return to the fluctuating exchange rate regime previously used global financial crisis; at the same time rejected the prospect of a large-scale assessments, due to the fact that China's economy is export oriented. The announcement was immediately welcomed by the IMF, the U.S. and Japan, because a stronger yuan would increase the purchasing power of the Chinese people and will create the necessary impetus to reorient investment toward industries for Chinese consumer

“I think now is the time, because it really needs China's participation in the creation of the new world order, a new financial world order. They are kind of reticent members of the IMF. Are present but not much input as it is not their institution. Their participation is not commensurate ... their voting rights are proportional to their weight, so I think that we need to create a new world order that China must participate and they need to be involved. They must have just as, say, the United States has the Washington Consensus, the current system, and I think it will be a stable new order, one that will be coordinated policy. I believe that achieving this already takes place as the G20, as peer reviews, effectively is moving in that direction ... China will come to light replacing the American consumer and, of course, will be a smaller engine because China's economy is much smaller . So, the world economy will have one engine less, so you go ahead went slower than 25 years. But China will be the engine that will drive forward and the United States will be a hindrance rather through a gradual fall in the dollar” (George Soros, “Financial Times”, 1 noiembrie 2009)

Starting in mid-April 2012, the Central Bank of China announced the widening of the fluctuation band for the yuan against the dollar from 0.5% to 1%. Devalued the yuan is considered China's main trading partners. Its value is determined by the central bank, which sets the daily rate and not by the law of supply and demand, as is the case for most major currencies of the world. Central Bank explained the decision, stating "exchange market development in China and the gradual strengthening of capacity pricing and risk management of market players." On this occasion, China reiterated its goal of making medium and convertible yuan total equip its national currency with an exchange rate to fluctuate freely.

The Original policy in investment banking and financial

China's investment in financial instruments issued in the U.S. totaled at the end of 2008, 1.700 billion U.S. dollars, including obligations and Treasury securities, which represent about 40 percent of China's GDP. The Chinese government holds U.S. Treasury bonds worth almost 900 billion U.S. dollars, 550 billion in bonds of agencies guvenamentale 150 billion in financial instruments issued by corporations, $ 50 billion in short-term deposits and as many billion dollars in different capital investment.

In 2008, China became the 48th member of the Inter-American Development Bank (IDB) and the 22nd member of the IDB borrowing money Latin American countries.

China Investment Corp., Sovereign fund valued at $ 200 billion and controlled by the government in Beijing has conducted numerous international acquisitions, one of the most important being the assumption of a 1.1 percent equity stake in the British producer of liquor Diageo.

Without ever mentioning the problems we have public banks, the government injected about 19 billion in Agricultural Bank of China (ABC), Bank of China third in size, totaling find over $ 120 billion of bad debts). After the influx of capital, ABC was launched in June 2010 in Hong Kong and Shanghai stock exchanges where collected from the sale of own shares 11 and $ 9 billion - which is a record of sales of shares, so a little more than the capitalization of state given by the Chinese government. Chinese banks seem to have problems with the recovery of 23 percent of the 7.700 billion yuan (1.100 billion) credit for infrastructure projects of local authorities in the provinces of China74. Moreover, the government led by Wen Jiabao announced plans to limit credit growth this year to 7.500 billion yuan (about 1.400 billion), compared to the record level of 9,500 billion yuan in 2009. Government in Beijing, led by Wen Jiabao plans to limit this year, credit growth to 7,500 billion yuan (1.400 billion), compared to the record level of 9590 billion yuan in 2009. During the first two months of the year, Chinese banks lent 28% of the target government in 2010, vice-governor of the People's Bank, Zhu Min, saying that moderation would be welcome.

Increase in consumer prices and bank lending accelerated in China in April 2010, raising fears of overheating and in context, intensified pressure on the Chinese authorities to reduce interest rates and the yuan's appreciation. In March this year, property prices have experienced the most significant monthly increase in five years, signaling that the measures introduced by the government to reduce inflation had limited efect. "Prices go up fairly quickly, but increase in consumer prices was mainly due to food prices and rents. In the medium term, prices will be under upward pressure, said spokesman of the National Bureau of Statistics, Sheng Laiyun. In May 2010, the People's Bank of China decided to increase for the third time this year, 0.5 percentage points minimum reserve requirements imposed on commercial banks to 17 percent, in order to be absorbed approximately 300 billion dollars in the economy.

On July 22, 2010, rating agency Standard & Poor's announced that Chinese banks - which has maintained a stable outlook, citing "sufficient force" them - face an increased credit risk and the rate of non-performing loans will probably climb to below 10 percent at the end of 2012, as more mature loans to government projects. It is likely that some loans to local government financial vehicles can no longer be reimbursed in coming years. Loans to these entities represents between 18 and 20% of total loans, also said Standard & Poor's. Meanwhile, the Chinese government has asked banks to conduct stress tests to ensure that the banking sector is one of the most important in the country's economy is not overheating.

Conclusions

As a result of its millenary history, "writing" in a very fast pace in the last 65 years, but due to the immense reservoir of civilization and culture that is China, it has become a formidable force in recent years financial and banking based on financial and banking growth pole which is the whole country worldwide. Thus, by wise policy reference rate of the national currency, the yuan, but also by the original policy in banking and financial investments, China has now become the reserve currency of the planet.

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SPECULATIVE BUBBLES AND FINANCIAL CRISES

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Abstract

The speculative bubble can be defined as the trade in high volumes at prices that are considerably at variance with intrinsic values of certain assets. The burst of speculative bubble can cause financial crisis in specific form created by situation of investment process dysfunction, when investors looking for investment refuges and refuse usual investment opportunities. This phenomenon can be a substantial basis of liquidity crisis and general financial crisis. Therefore is very important for regulation authorities to take in to account the possibility of this type of crisis to elaborate specific measures to prevent and reduce the consequences.

Keywords: bubble, crisis, asset, price, factors

JEL classification: G11, G12, G15

Introduction

The term bubble in the economic sense is treated in the literature variously. According to Bill Conerly (2013), "a bubble is a run-up in the price of an asset that is not justified by the fundamental supply and demand factors for the asset that can occur in any traded commodity or financial instrument." From the other hand, Farlex Financial Dictionary (2012) treats bubble as a in which prices for securities, especially stocks, rise far above their actual value. This trend continues until investors realize just how far prices have risen, usually, but not always, resulting in a sharp decline. Bubbles usually occur when investors, for any number of reasons, believe that demand for the stocks will continue to rise or that the stocks will become profitable in short order. Both of these scenarios result in increased prices. (Farlex Financial Dictionary, 2012)

The literature demonstrates the existence of several types of bubbles (Pettinger, 2013): market bubble, commodity bubble, stock market bubble, credit bubbles, economic boom / bubble. Bubbles can occur in any traded commodity or financial instrument. Bill Conerly (2013) suggests a partial list of past bubbles:

- *Commodities*: gold, sugar, coffee, cotton, wheat
- *Debt:* various government bonds
- *Stocks:* South Sea Company, British East India Company, Dutch East India Company, various banks, railroad shares, conglomerates, new issues, high tech stocks
- *Real Estate:* Mines, raw land (France, Austria, Germany, Florida, Arizona), hotels, office buildings, single family homes, mines
- *Derivatives:* commodity futures, stock puts and calls, collateralized debt obligations, credit default swaps

In most cases the experts are willing to link financial crisis triggered a generalized type of bubbles. It is speculative bubbles, which in simple form can be designed as a speculative bubble is a social epidemic whose contagion is mediated by price movements. (Shiller, 2012) Also, the essence of speculative bubbles can be express by definition of Tejvan Pettinger (2013), who believe that it "typically refer to a situation where assets or financial instruments see a rapid increase in price – an increase in price which is driven by speculative demand and unsustainable in the long run."
From another point of view, speculative bubble is a spike in asset values within a particular industry, commodity, or asset class. A speculative bubble is usually caused by exaggerated

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expectations of future growth, price appreciation, or other events that could cause an increase in asset values. This drives trading volumes higher, and as more investors rally around the heightened expectation, buyers outnumber sellers, pushing prices beyond what an objective analysis of intrinsic value would suggest. (*Speculative bubble, n.d.*)

In the discussed context, it is interesting that some authors define speculative and financial bubbles interchangeably:

- financial bubbles are "movements in the price, apparently unjustified by information available at the time, taking the form of a rapid increase followed by a burst or at least a sharp decline". (Dimitriadi, 2004, p. 2627)
- a situation where there is a relatively high level of trading activity on a particular asset class at price levels that are significantly higher than their intrinsic values. (Gallant, 2009)

Also significant is the statement that a bubble occurs when certain investments are bid up to prices that are far too high to be sustainable in the long run.

Examples of Bubbles (Pettinger, 2013):

- *Tulip mania of 1630s.* When the price of tulips rose to over 500 times their previous price before collapsing when buyers stopped entering the market.
- *South Sea Bubble 1711-1720*. A company set up to profit from British trade with South America. The price of shares rose rapidly, but with the company failing to make any real profit, share prices collapsed in 1720 and returned to pre-issue levels.
- *1920s credit and housing bubble in U.S.* In the 1920s, there was a rapid growth of credit in the US. This financed a boom in house building and also a boom in the stock market. This rise in credit and share prices came to an abrupt end in 1929 with prices crashing.
- *Dot Com Bubble.* A rapid growth in the share value of internet shares in 1997-2000.
- *Credit bubble of 2000s*, which saw a rise in asset prices and bank lending.
- *2005-2009 housing bubble, which* is an economic bubble affecting many parts of the United States and other countries.
- *Bitcoin bubble* - the latest bubble created by Bitcoin - a digital currency that has increased in value by 900% over the last six months of 2013.

Studies of the concerned field show a specific range of the bubbles, which in general can be rational, intrinsic and contagious. (*Stock market bubble,* n.d.)

Rational bubbles are formed in the market value of the asset deviation from the fundamental value that the counter of the lack of arbitration.
A rational bubble implies a self confirmed belief that the price of an asset depends on the information that include variables or parameters that are not part of the fundamentals of the market.
The literature shows that if market fundamentals are economically interesting, it is expected that rational bubbles can be explosive and implosive. Further arguments based on existing literature shows that the trend of maximizing utility requires finite limits on asset prices and therefore opposes both explosive and implosive rational expectations of price developments, except implosion worth the money.
The theoretical analysis of rational bubbles expands in two directions.
The first demonstrates that although demand response to current stock of assets at the current price depends on fluctuations in the fundamental characteristics of the market. Such a response would explode or implode even faster a rational bubble. The rational bubble explosion or implosion is proof of the assumption that the stock of assets evolve independently.
The second, more important, shows that the present analysis examines the beginning of bubble rationally and shows that for reasonable bubble negative such as a bubble inflation sound to begin the formation of a positive rational bubbles, would also be likely positive. In particular, the absolute value of the initial set of potential negative rational bubble can not exceed the estimated initial potential positive rational bubble. This result dramatically expands the theoretical basis for the prevention of rational bubbles. In particular, from rational utility maximization rule is out deflationary bubbles and also contrary to the beginning of a rational inflationary bubble. (Behzad, Herschel, 1985, p. 16)
Intrinsic bubbles derived from exogenous economic fundamentals and none other factors. Unlike the most popular examples of rational bubbles, intrinsic bubbles provide a plausible account of deviations from the empirical evaluation based on present value. Their potential explanation comes

in part from their ability to generate persistent deviations that occur relatively stable over long periods. (Kenneth, Maurice, 1989, p. 3-19)

Contagious bubbles are formed on the markets of countries moving the markets of other countries.

The main objectives of the research in the bubbles were the following:

- Highlighting the essence of speculative bubbles;
- Detecting peculiarities of their swelling and break mechanisms;
- Demonstrating the link between speculative bubbles and financial crises.

Description of the problem

Speculative bubbles are considered temporary market conditions resulting from excessive demands on the market along with an unfounded increase in the price level of the market. Sensing a growing trend of prices, purchasing investors creates massive pressure in order to participate in market profitability. (*Bulele speculative* , n.d.) These bubbles are usually followed by rapid sales and prices when starting to decline. Generally a bubble grows slowly, moving gradually to the climax over a period of several years. After the bubble peaked prices begin to fall and panicked selling investors create massive pressures leading to a accelerated fall of market prices. Regarding stock markets financial analysts believe that stock is in a bubble when the stock rates affect the economy more than exchange rates affect the economy. This can be considered a common feature of all bubbles in history. Bubbles are a type of investment phenomenon that demonstrates the fragility of investor psychology. Investors put their hopes so high that they exceed the stock courses any rational reflection of the real value of those securities. Early that bubbles have no substance at some point they "bust" and the money invested in these shares is dissipated in the wind. (*Bulele speculative* , n.d.)

Using Minsky's concepts can be outlined five stages of a speculative bubble (*5 Steps Of A Bubble*, n.d.):

1. *Displacement:* This stage begins when investors become "lovers" of a new paradigm, and innovative new technology or interest rates that reached a historic low.
2. *Boom:* prices start to rise slowly at first due to the movement of investor interest. But gradually, the growth rate starts to rise, as more and more investors enter the market, thus establishing the conditions for creating the boom. During this phase, the asset becomes more and more attention in the media, which contributes to increase the number of interested investors. Appears then fear not rate players what they think is an opportunity that comes once in life, feeling that helps to increase even further the number of participants.
3. *Euphoria:* at this stage, any trace of caution is set aside so that asset price increases very much in a very short period. Theory of "biggest loser" is available here as possible. Prices start reaches ridiculous. During this phase, in order to be justified these astronomical prices, are thrown to the so-called new systems of measurement of value.
4. *Profit taking:* this stage begins even during the phase of euphoria. Thus, investors who foresee what will follow beginning to sell and collect huge profits. But estimating the exact time, the bubble will burst is extremely difficult and dangerous. This break could be caused by a minor event, but once produced this phenomenon is irreversible.
5. *Panic:* at this stage, prices start to come down as quickly as they rose. Investors and speculators, all, want to escape as quickly and at any price the assets, which were in love until recently. Offer growing rapidly, far exceeds demand, and the inevitable happens.

A basic characteristic of bubbles is the suspension of disbelief by most participants during the "bubble phase." There is a failure to recognize that regular market participants and other forms of traders are engaged in a speculative exercise which is not supported by previous valuation techniques. Also, bubbles are usually identified only in retrospect, after the bubble has burst. In most cases, an asset price bubble is followed by a spectacular crash in the price of the securities. In addition, the damage caused by the bursting of a bubble depends on the economic sector/s involved, and also whether the extent of participation is widespread or localized. (*5 Steps Of A Bubble*, n.d.)

Bubbles can be damaging to the wider economy, especially if it is a key market, such as housing or the stock market. A stock market crash can cause a loss of confidence and lower spending. (Pettinger, 2013)

Moreover, a serious problem is the fact that financial bubbles have a tendency to gain ever greater proportions, moving locally on the international level. And then the "bursting" the systemic crisis takes place two times. First of all is the onset of turbulence by speculation, whose power has grown through new financial instruments. Then shock wave propagation occurs in the whole planetary financial system. This is achieved by spreading contagion because financial markets are highly interconnected. Based on modern means of communication, information is broadcast almost immediately from one end to another planet. Each market is influenced by the information common to all markets. Reactions of operators in a market considered directories are immediately passed on to other financial markets. This process of propagation and chain repercussions behavior is amplified by "contagion via mimicry", very common in financial markets. Traders do not base their decisions on their own criteria, but considering those of others. The events that have no connection with the financial situation of a country or company can cause a crisis here. (Păun, 2003, p. 28)

Methodology and data sources

Research carried out in the first place was based on the descriptions formation and bursting of over 20 bubbles from different countries contained in various bibliographic sources. After was examined the existing theoretical concepts and analysts comments on the bubbles. Following was performed generalization and synthesizing of basic ideas and formulate hypotheses on speculative bubbles mechanisms, which were tested with the public databases dialing accessible specialized sites on the Internet. Obtained results were presented in this article.

Results obtained

For the beginning, have been generalized and synthesized main causes of specualtive bubbles:

1. Interest rates

The level of interest rates has a major impact on market mechanisms of financial market and therefore it becomes an important tool in management training and bursting bubbles.

Radical reduction of interest rates by the monetary authorities of the country usually aims to stimulate economic growth by increasing the volume of lending.

But along with this, the following processes occur:

•Substantial increase in demand for loans, which may result effectof overcrediting;
•Increasing loan volumes increase the liquidity of the market, which increases the demand volume of assets traded in the market;
•Reducing lending rates causes lower interest rates on deposits, which has the effect of increasing demand for alternative investment opportunities.

In the complex, these effects lead to the appearance of new specualtive bubbles and / or stimulate existing ones. Raising radical interest rates may cause bursting financial bubbles and if the process now grew, bursting can produce a financial crisis.

2. Liquidity

Excess of liquidity, for example, generated by lax lending policies, prices of certain sectors leads to inflammation processes, then leading to the collapse of the market.

Increase of liquities exceeds usually gradually and in significant volume of available financial instruments inevitably leads to the phenomenon of "hot money", which consists in increasing market competition among investors for placing money excess, which leads to higher prices assets traded in the market and the gradual reduction of profitability of investments. Thus, high levels of liquidity generate excessive risk capital allocations in some sectors and speculative bubbles.

3. Psychological factors

Bubbles phenomenon can be explained by the investment psychology and its negative effects. Often economy slump recorded in various causes such as political or economic instability, natural disasters, war, etc. All these can not be controlled by the individual investor. However turbulence in financial markets is often linked to investor’s psychology. Many times the losses of investors on the stock markets because they are subjective and influenced decisions they take. One of common errors made by investors everywhere is the fact that their investment decisions are the result of so-called "group mentality" in accordance with the decisions of others celorlalţi. The dependence

regarding investment often occurs on stock echange market. Such market problems often stops investors invest according to their own strategies and accurate evidence-based, and prefer to follow the path imposed by other investors. According to behavioral finance with as little as an investor knows the easier it is for it to be affected by the "group mentality." The more ignorant investors entering the panic quickly thus creating prerequisites for true stock collapse.

We can distinguish two actions caused the "group mentality":

- *panic buying:* when investors observe a share price increase and without waiting for the share they buy in the hope of significant profits. They forget to study the "folder" that company and guides the strategy according to the general opinion of other investors. Trap the fall itself those investors is limited to the idea that to the extent that an investment seems too profitable to be true, it probably is.

- *panic selling:* is the time the speculative bubble that caused the growth of the market unfounded "break" and investors trying to reduce their losses as much as possible by selling shares. Pressure to sell shares will only lead to the stock market collapse.

Another problem is psychological extrapolation, which is to design for the future of historical data, leading to the assumption that prices will increase in the future permanently. Investors usually extrapolate the future profitability of investments in certain assets, leading to price increases and the risk of these assets, hoping that they will sell at higher prices. But raising asset prices lead to too low investment return to the desired placement investors, which requires it to sell assets and then begin falling prices.

4. Moral hazard

Banks and other companies as financial intermediaries generally have a tendency to behave irresponsibly. They display a penchant exuberant in their investment decisions, most often taking huge risks, as the expected profits. It is observed that these institutions have reduced their equity ratios to extremely low levels, generally less than 10%. As liquidity is economic buffer losses, financial firms are particularly vulnerable as their margins are lower liquidity. If so vulnerable firms dominate the market - as is currently the case - then there are high chances of contagion as the liabilities of any company are often the assets of another. Bankruptcy of one of such large companies can then trigger a domino effect, subsequent bankruptcies. The entire financial market dissolves. While economists agree on this basic, the more strongly they disagree about its causes and remedies. Some seem to believe that the investment decision irresponsible inclination is as natural as bad weather or death. Financial markets are unstable by nature, because the agents in these markets would benefit from superior knowledge compared to those of their customers ("information asymmetry") and can enrich their behalf. (Hülsmann)

5. Financial innovations

For the addressed purposes product innovations particularly manifests in the securities market. These often facilitate access to finance for business issuers, given that the outcome of innovation, securities become more attractive to investors.
The innovation activity in the securities market can be viewed from two perspectives: from the point of view of financial market participants innovations serve to optimize financial flows, but can also lead to increased number of issuers listed above, which may cause the macro economic crisis-even level.

In addition, the emergence of innovations leads to greater interdependence of financial markets that some non essential crisis phenomenon leads to manifestations on others analog.

6. Other possible causes

Some experts explain specualtive bubbles in connection with inflation and bubbles, in turn, can cause inflation. There are theories that promote the idea of chaotic bubbles that may occur in critical situations, the result of the superposition of several economic factors. Other experts say that bubbles are inevitable consequences specualtive irrational valuation of assets (unconfirmed by fundamentals). (*Chaotic bubble*, n.d.)

Based on observation which backed up by 500 years of economic history Jean-Paul Rodrigue inferred standard evolutionary scenario of a speculative bubble (Figure 1), which is confirmed by example of South Sea Company Bubble (Figure 2) and Bitcoin Bubble (Figure 3).

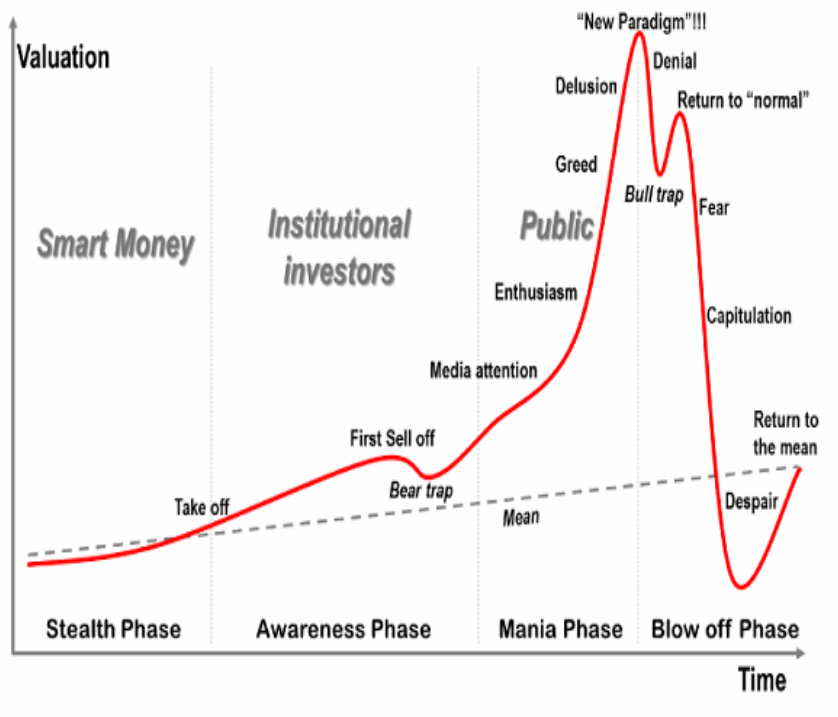

Figure 1. Main Stages in Bubble

Source: (Rodrigue)

Figure 2. South Sea Company Bubble

Source: (Colombo, 2012)

Figure 3. Bitcoin price chart Source: Colombo (2013)

Tests have demonstrated that this model illustrates a unique process, if the intrinsic value of the underlying asset bubbles tend not increase or diminish.

If the intrinsic value of the asset has a tendency to increase, then we can see trends that repeatedly shape bubbles.

An example can be presented in the international market of gold (Figure 4). Continued growth in demand for gold for industrial needs and exhausted traditional gold layers provide an increasing trend of intrinsic value of gold and a basic upward trend. Meanwhile, the use of gold as investment shelter (especially during financial crises) and speculative tool generates bubbles, the last of which recently broke.

A similar process we see on the stock market the United States expressed the dynamics of Dow Jones Industrial Average Index (Figure 5). Thus, in 2009 we witnessed the formation of a major financial bubble.

Also, as a consequence of the process of financial internationalization and globalization can be highlighted specualtive bubbles from different countries, which have made and broken almost simultaneously.

Figure 4. The dynamics of world prices of ounces of gold from 1973 to 2014 (USD)

Source: http://therealasset.co.uk

Figure 5. The dynamics of Dow Jones Industrial Average Index from 1995 to 2014

Source: http://www.marketwatch.com

As an example, can be presented bubbles formed on the stock markets of the USA, France and Canada in the period of 1995-2003 years (Figure 6).

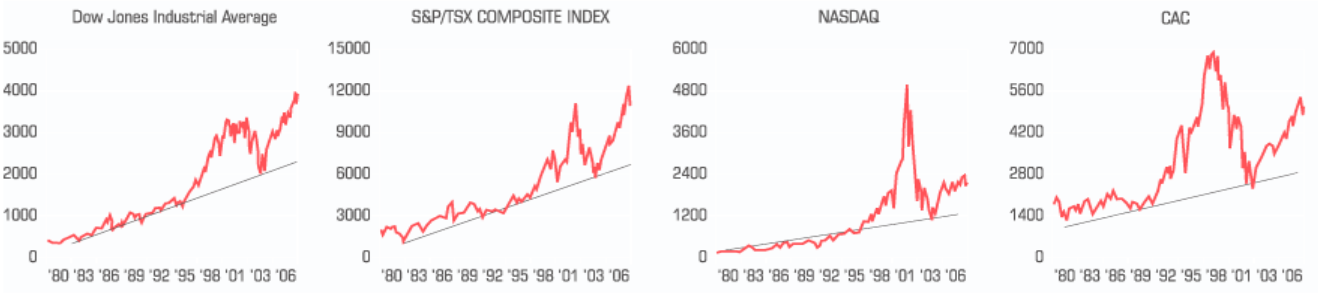

Figure 6. The dynamics of Stock Indexes from 1980 to 2006

Source: Gurova (2006)

As you can see, there is a positive correlation between Dow Jones Industrial Average, S&P/TSX Composite, NASDAQ and CAC indexes.

Some financial bubbles, which are produced financial crisis, could cause by contagion effect the bubbles bursting on other markets. For example, the bubbles break from Asian countries and the international financial crisis in 1997 was one of the factors caused the collapse of the Government securities market and financial crisis in the Russia in August 1998. These events were one of the causes of Government securities market falling in Moldova in October 1998.

Studies have demonstrated the enormous importance of market makers and central authorities' activities in the evolution of speculative bubbles. For example, according to some theories, swelling and bursting stock market bubble in the USA in 1929 was organized by major American bankers by margin trade financing finance period of 1927 to 1929 and withdrawn from the market on the eve of the financial crisis.

Meanwhile, efforts are remarkable financial, economic, administrative and political authorities to maintain the US's Government Debt bubble that began to form in the early 2000s (Figure 7). Contrary to the expectations of many experts, in 2012 there had been no breaking the bubbles, but on the contrary, its growth occurs far.

Following research has established that one of the consequences of the financial bubble bursting is financial crisis generation. Especially, it can be one of its forms - investment crisis, wich represents a deadlock situation in developing investment process is driven by the refusal of investors to make investment opportunities, or lack thereof, and for other specific reasons.

Investment crisis usually leads to financial market liquidity crisis that precedes, in turn, general financial crises. Substantial reduction in financial market liquidity often leads to radical loss financial assets, which are considered by many experts financial crisis. (*Financial crisis*, n.d.)

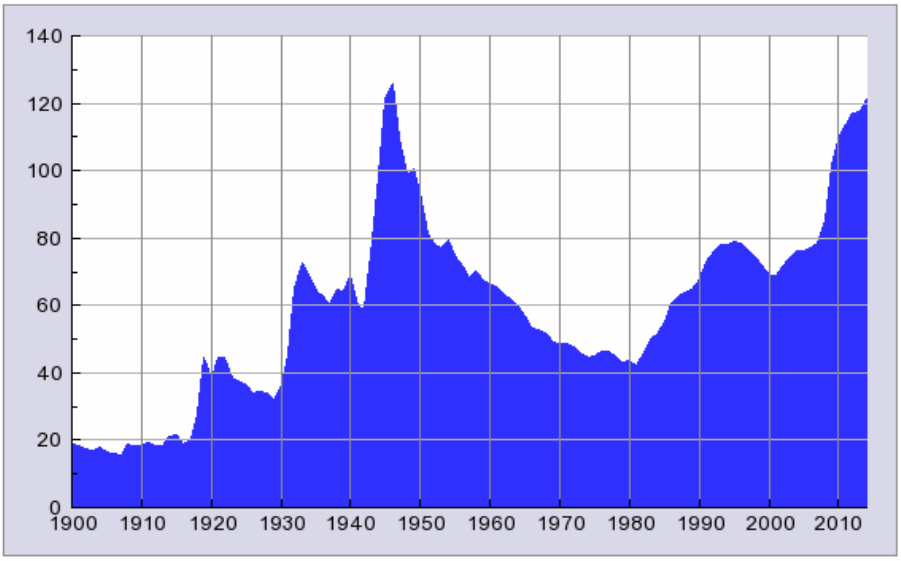

Figure 7. US Total Government Debt from 1900 to 2014 (percent GDP)

http://www.usgovernmentspending.com/spending_chart_1900_2019USp_XXs1li111mcn_H0t_US_Total_Government_Debt

In turn, liquidity dynamics can be characterized by the following (Lobanov, Chugunov, 2003, p. 307-308):

- *Liquidity concentration*. Markets which are traded instruments can replace each other often liquidity is concentrated on a small number of active and at the same time, other assets remain essential less liquid.
- *Liquidity disappearance* on the market. Typically, the concentration of liquidity in one market leads to the liquidity disappearance on other markets.
- *Flight to liquidity*. This can be considered the migration of liquidity in the markets, which, as expected, will maintain sufficient liquidity even in times of crisis. If a phenomenon such market participants are willing to pay a higher premium than usual to invest resources in such assets. The phenomenon of "runaway liquidity" is usually part of a larger process of flight to quality, as market participants pay a higher premium for assets that have a lower risk of all forms (and primarily of the crediting) times, and observed on the market crisis.

As shown, market liquidity is strongly influenced by investor sentiment and, in our opinion, and liquidity crises are often caused by seizures investment.

Usually crises resulting investment relatively quickly, but they can exist in a dormant state and not be so visible, slowly damaging the normal functioning of financial markets and undermining the foundations of economic growth of the country.

Conclusions

Bubbles are an indispensable element of modern financial system. The research results show predictable behavior of bubbles, which, to some extent, allows forecasting the financial crisis, which can serve as an informational support for setting operating strategies for speculators and investors, and regulators measures of public authorities. At the same time, it should be taken into account peculiarities of certain types of speculative bubbles and basic behavior of market operators.

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REMITTANCE. FORECASTING METHODOLOGY AND INSTRUMENTS

Sergiu GHERBOVEŢ[78]

Abstract:

Remittances generally reduce the level and severity of poverty and lead to: higher human capital accumulation; improved access to formal financial sector services; enhanced small business investment; more entrepreneurship. Remittances are playing an increasingly large role in the economy of Republic of Moldova, contributing to economic growth and to the livelihoods of less prosperous people. In this context, a special role lies this flow forecasting. Considering these facts, the article aims to describe econometric estimation of money transfers associated with remittances.

Keywords: remittance, forecast, econometrics

JEL Classification : JEL: C53, JEL: F24

Introduction

Remittances are the most visible outcome of migration. International migration can potentially create significant financial and social benefits for migrants, their families, the destination country and the country of origin. Migrants benefit if the net return to their skills is higher in the host country than in their home country while their families benefit from increased consumption and investment as a result of remittances sent by migrants. Furthermore, immigration of workers allows receiving countries to fill their labour market shortages while from the sending country's perspective one of the main benefits of migration stems from the transfer of money from migrants to their families at home, which has a positive effect on the balance of payments. Notwithstanding the several benefits of migration, a large strand of literature has also highlighted the negative aspects as well, primarily that of the brain drain. However, one argument put forward is that the remittance flow from migrants to the home country tends to compensate for any human capital loss.

The collapse of the Soviet Union in 1990 and later the Russian financial crisis of 1998 have had significant detrimental effect on Moldova. Early 1990s saw an increase in migration flows as the restrictions on citizens' movement came to an end coupled with a significant increase in unemployment rate as the country moved from a centralised to the market economy. The economic conditions were further exacerbated after the Russian crisis such that the country's industrial and agricultural output plummeted by 25% and 20% respectively and its exports were reduced by almost half by 1998-1999. In addition to this, major expenditure cuts in 1998 and 1999 due to unsustainable government deficit and privatisation of the agricultural sector increased the unemployment rate even further which moved more population below the poverty line (a total of 80% by 1999). Together, these factors propelled significant migration from the country, making it a mass phenomenon. Some villages lost up to 50 percent of their active population. The sight of villages with only children and elderly became increasingly common in the independent Moldovan state. A direct and significant effect of higher migration rate was the increased flow of remittances into the country. An interesting point to note here is that the level of remittances sent via formal banking channels has been increasing steadily. This increase in inflows had a twin effect on the economy. On the one hand it prevented further decline of the economy by reducing the government's dependence on conditionality based borrowing, while on the other hand it encouraged yet higher outward migration. So, while the country experienced a remarkable increase (more than 30%) in real GDP and a significant decline in the poverty rate (which was reduced to half in a span of merely four years in the period 2000-2004), migrants now accounted for about 28% of the working population and about 18% of the total population of Moldova in 2005. Labour migration from Moldova is broadly directed towards two regions: CIS countries, (predominantly Russia but to a small extent Ukraine as well) and Western Europe, particular to Italy. In addition to this, there is also considerable migration to Israel, Turkey and Romania. Similar dichotomy exists between CIS and other countries in terms of the socio-economic characteristics of migrants to these countries. It is found that migrants to CIS countries are predominantly male, from rural areas with relatively low levels of education. This pattern closely correlates to the characteristics of jobs

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performed by migrants in these countries. More than 65% of migrants to Russia are employed in the construction industry, thus the apparent predominance of low-skilled men migrating to this region. Migrants to the CIS who work in sectors other than the construction industry also come from rural areas but their education levels are slightly higher. By contrast, migrants to the EU are mostly urban females with relatively higher level of qualifications. An analysis of the percentage of earning repatriated indicated that migrants to CIS nations tend to remit a larger share compared to migrants to the EU. The type of job coupled with the legal status in the destination country is a key determinant of the length of the migrant's stay abroad. Additionally, the motivation to migrate (i.e.,economic need or opportunity) also plays an important role. Russia seems to be the destination of choice for temporary migrants, as the construction industry in the country depends on temporary contract work. In addition, migration to Russia is less costly due to both the geographic proximity as well as visa-free travel, making achieving target savings in a relatively short-time more plausible. On the other hand, migration to the EU is more long-term/permanent in nature, which is possibly driven by the difficulty in leaving the region once there as the initial entry is mostly illegal in nature. (Matloob Piracha Amrita Saraogi, 2011)

The insurance motive to remit also means that remittances can be used for consumption, which Lucas and Stark (1985) have shown to be the case in their study. (Lucas, Robert E.B., Oded Stark. 1985)

Description of the problem

It is estimated that approximately 770,000 Moldovans live and work abroad, which represents over half of the economically active population (labour force in 2008 was 1.4 million) and about 21 percent of the total population of Moldova. Remittances are estimated to be around 31 percent of GDP for the year 2008, which is almost twice the figure in 2002 and is about eight times the foreign direct investment and seven times the official development aid the country receives. The share of remittances in GDP since 2006 has been in excess of 30 percent, reflecting the massive dependence of the country on these transfers. An important element of migration from Moldova is that most of it is temporary (or circular) in nature, and this form of migration is primarily to Russia. . (Matloob Piracha Amrita Saraogi, 2011)

The insurance motive for migration and remittances predicts that remittance flows should be countercyclical, or at least less pro-cyclical than other financial flows. Ratha (2003) finds that remittances into developing countries are indeed less volatile than private capital and even more stable than FDI – the more stable component of private capital flows. Moreover, remittances remain relatively stable even during large shocks. The increase in aggregate demand due to the inflow of remittances is partially spent on nontradable goods and services, therefore creating inflationary pressure. The supply of foreign currency tends to cause a nominal exchange rate appreciation. In sum, remittances lead to an appreciation of the real exchange rate, accompanied by the deterioration of the current account. (Ratha, Dilip. 2003)

For the government, the short-run consequences of migration and remittances are a blessing:

- The increase in imports (financed by remittances) increases the state's revenues from import tax and VAT on imports.

- The real exchange rate appreciation facilitates the servicing of public debt. The exchange rate appreciation helps reduce the value of foreign currency-denominated debt the same way in which inflation helps devalue the stock of national currency-denominated debt. Since liabilities of most developing governments are primarily dollar-denominated, the appreciation reduces the overall value of public debt.

- The inflow of foreign currency facilitates the accumulation of foreign reserves by the Central Bank.

- By reducing unemployment, migration effectively reduces the state's payments of unemployment benefits.

However, the analysis of a longer-term horizon hints that migration and remittances may prove to be a mixed blessing for governments of sending countries. Outward migration of the active population deteriorates the dependency ratio – there are fewer workers per nonworker. The increased dependency ratio leads to a ecreased sustainability of "pay as you go" pension systems,

which are traditionally large in the case of transition economies. There are simply not enough working people to pay the pensions of the old. An indirect negative effect of remittances and migration on the long-run performance of public institutions stems from certain short term benefits. Remittances effortlessly bring higher tax revenues, improved balance sheets, higher foreign currency reserves and as we'll see in the next section, short-term economic growth. In such a situation, governments are no longer subject to former stringent constraints, which postpone structural reforms.

The long-term effects constitute a mixed bag of negative (loss of competitiveness due to real exchange rate appreciation/increased wages, reduction of human capital due to brain drain, postponed structural reforms, increased dependency ratio) and positive (increased savings and investment into physical and human capital) effects. Not surprisingly, cross-country evidence provides similarly ambiguous results. The positive impact on investment and savings is the main channel through which remittances affect growth it is estimated that remittances have crossed the 1 billion dollar mark in 2005, or over a third of GDP. Remittances for 2004 alone ($701 million) were comparable to Moldova's total exports for that year ($950m) and rivaled the total cumulated foreign direct investments received from 1997 to 2004 ($774 million). (Culiuc A., 2006)

However, the final test for the impact of migration and remittances on export competitiveness is the export performance itself. Exports have steadily decreased as a share of GDP, while imports have approached 80% in 2005. In fact, in 2005 imports were more than twice larger than exports.

Migration and remittances have affected some other aspects of the economy:

- Since 1999, migration has reduced the number of unemployed receiving benefits by almost ten-fold: from 12 thousand people in 2000 to around a thousand by the end of 2004.

- At the same time the dependency ratio has increased from 1.02 in 1998 to 1.42 in 2004, which has applied additional stress to an already poorly-functioning pension system.

- The increase of imports has lead to a corresponding increase of VAT on imports. Imports generated 56.7% of all VAT in 1999, increasing to 67.4% by 2004. This has lead to a steady increase of VAT revenues in total budget revenues from 41.4% in 1999 to 52.5% in 2004. Effectively, VAT on imports (excluding duties) finance 35% of the budget.

Methodology and data sources

This flow of money across borders has profound social and economic impacts on various aspects of the home economies. In particular, remittances promote access to financial services for the sender and the recipient, thereby increasing financial and social inclusion.

Given this, understanding the factors that determine this flow of money is important, more important is to analyse and contextualise the net benefits of migration and to can forecast this flow of money. But how to estimate this flow of money. In general we can estimate that remittance is the money transfers from abroad from the data of National Bank of Moldova.

Money transfers from abroad in favor of individuals (resident and nonresident) represent amounts of money remitted in the country through the national banking system, including international money transfer systems. Amounts are converted from the original transfer currency into US dollars at the official exchange rate of the NBM on the transfer date. It should be noted that the origin as well as the purpose of these amounts can be varied. They include, besides the amounts transferred by Moldovan migrants, other foreign exchange transfers.(National Bank of Moldova, 2014)

There are two ways of forecasting using regresion and times series analysis. Regression is an approach for modeling the relationship between a scalar dependent variable and one or more explanatory variables , but most of this kind of models give wrong forecasting results as compesation equation from IMF report (IMF, Republic of Moldova: Selected Issues, 2012, p.59). There are a multitude of options to develop an econometric model, and then based on it, to forecast in the short term. Nowadays trends in forecasting bank transfers are based on models in which the

growth rate of GDP of that country or REER (real effective exchange rate), appearing as variables. But the problem is that most of them give wrong forecast in the short term. I decided to use ARIMA and exponetial smoothing models.

Results obtained

As we can see from the box plot representation of money transfers the most amount of money come in the last two quarters of the year. Making a bigger impact on the exchange rate appreciation.

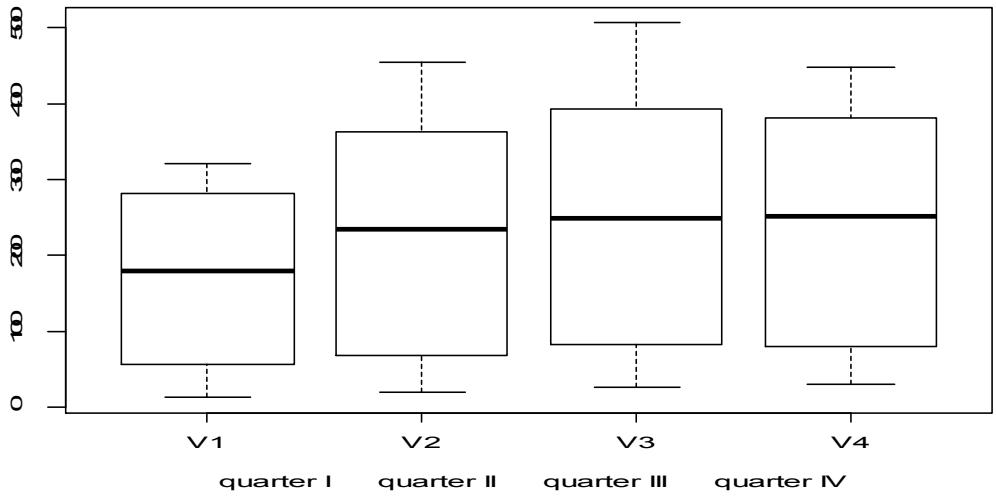

Figure 1. Box plot of money transfers by quarters
Source: NBM, Money Transfers from Abroad in Favor of Individuals, author's representation

The model exponetial smoothing (error, trend, seasonality) was choosen, general notation ETS(Error,Trend,Seasonal) All exponential smoothing models can be written using analogous state space equations. In general there are 15 separate exponential smoothing methods each having additive or multiplicative errors, resulting in 30 separate models. From the multitude of models was chosen as the criterion AIC model multiplicative Holt-Winters method with multiplicative error. AIC criterion is very useful to compare different models and select best model. (Automatic Time Series Forecasting: The forecast Package for R , 2014)

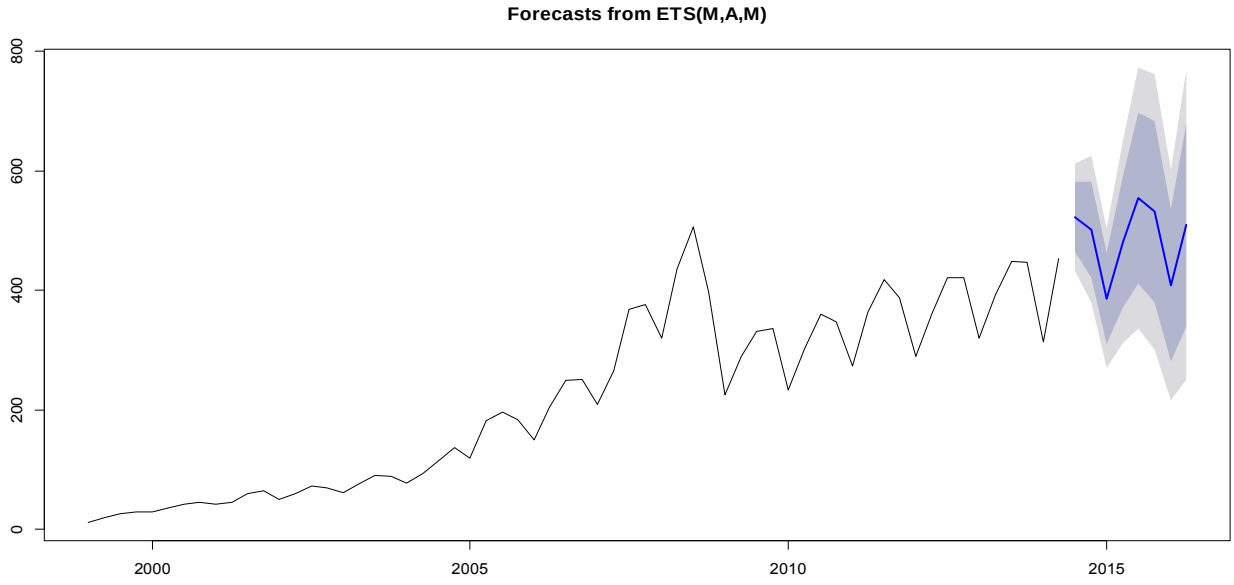

Figure 2. Money transfers from 1999-2014 and forecast
Source: NBM, Money Transfers from Abroad in Favor of Individuals, author's representation.

	Point Forecast	Lo 80	Hi 80	Lo 95	Hi 95
2014 Q3	522.9202	464.0999	581.7406	432.9622	612.8783
2014 Q4	501.7885	421.4681	582.1090	378.9490	624.6281
2015 Q1	386.2313	310.0397	462.4229	269.7063	502.7564
2015 Q2	481.5593	371.1802	591.9385	312.7490	650.3697
2015 Q3	554.2118	411.2952	697.1284	335.6397	772.7839
2015 Q4	531.3730	380.3307	682.4153	300.3737	762.3723
2016 Q1	408.6720	282.4176	534.9265	215.5825	601.7615
2016 Q2	509.1382	339.9382	678.3381	250.3692	767.9071

Figure 3. Forecast of money transfers.

Source: author's calculations

Conclusions

Is better to use the methodology of the model for forecasting the direction of tranfers through the study of past market data, but not to the study of economic factors that influence the money transfers. The factors as GDP, REER, the posible crisis or sanctions is not in the model, it holds that quotes already reflect all the underlying factors. At the same time the money transfers not necessarily will behave as in the past for example a crisis can start. The model have some limitation but without drawing attention to these things generally give accurate predictions. The model forecast show that the money transfers will be aproximatley at the same level with a little increase for the next quarters.

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BANKS' STRATEGIES TOWARDS NON-PERFORMING LOANS IN BULGARIA: PROBLEMS, CHALLENGES OF THE REGULATION AND POLICIES ALTERNATIVES

Tatiana HOUBENOVA-DELISIVKOVA[79]

Abstract

The paper analyses the main features of non-performing loans (NPLs) in Bulgaria and qualitative assessment of the varieties of the banks' strategies for their management with regard to the related risk and the consequences for the banks. On one hand, the emergence of NPLs is discussed from point of view of the common behaviour of banks as credit risk arbitrageurs as well as a result of crisis consequences. On the other hand, the 'post ante' issues of the NPLs and especially the banks' resolution policies when NPLs are not repaid any more, require high levels of provisioning and write-downs.

The liquidity crisis of two Bulgarian banks that resulted in their closure in mid summer of 2014 is discussed. The issues of the non-performing banks' liabilities to depositors are discussed and the risk of contagion for the banking and nonbanking intermediaries is revealed. A risk assessment of the interdependence between the banks's insolvency on deposits and the losses sustained by other financial institutions underlines the need of making use of more strict banking regulation. The adoption of more strict regulation concerning the NPLs is revealed with regard to the implementation of good practices of NPLs management and corporate governance of banks.

Keywords: indebtedness, nonperforming bank assets, assets quality management, liquidity, capital adequacy, solvency, contagion.

JEL classification: G21,G28,G32,G33.

Introduction

The typology of the varios types of banks' strategies for the treatment of the NPLs may be characterised by several main criteria that should be applied in credit management in order to consider how the monitoring and supervision of the banks may ensure financial stability. On one side, the classification of the non-performing loans has been considered an important approach for the new EU member states to deal uniformly with the bad loans according to accepted international standards (2012, p.32). Besides for the bank management the non-performing loans are to be treated inseparably with regard to the performing and restructured or cured loans. In the interests of a bank with regard to the losses caused by the non-performing is to increase its capacity of self control and to undertake the forbearance of the repayment of all loans with special care. The synonyms of forbearance are self-control and self-restraint in the management of the financial stability and solvency of a bank.

The bank management is to be involved in principle by the proper matching of liabilities and assets as qualitative and quantitative characteristics. At the same time any disproportions in the liabilities-assets management may result in inadequate management of bank's liabilities with threat for the bank's insolvency. Thus non-performing loans are becoming only one aspect of non-performing bank or bank's running into insolvency. The lack of adequate credit policy and specific risk assessment approaches prove to cause difficulties to the bank management of its liquidity and solvency. The issues of unmanageable dismatch between the liabilities and the assets of a bank seem considerably underestimated at present in the Bulgarian case not only by the bank's management staff but also by the Banking supervision. The case of a recent massive bank run and closure of two Bulgarian banks is to be properly analyzed as a necessity to focus on better banking regulation for crisis prevention.

Main features of the NPLs in the banking sector in Bulgaria

The Bulgarian banking system has been characterized by rise of the gross total value of non-performing loans since 2008. On one hand, this increase is a result of the deepening of the crisis and the slowdown of economic growth in Bulgaria in 2009-mid2014 which caused more

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bankruptcies among the banks' clients (small and medium size companies, non-financial entities and households). On the other hand, due to the slowdown of economic growth and the business uncertainty there has been a credit crunch which did not allow the rise of the total sum of all loans. This is another reason for keeping the share of the non-performing loans high as percentage from the total debt instruments and advances (See Figure 1.)

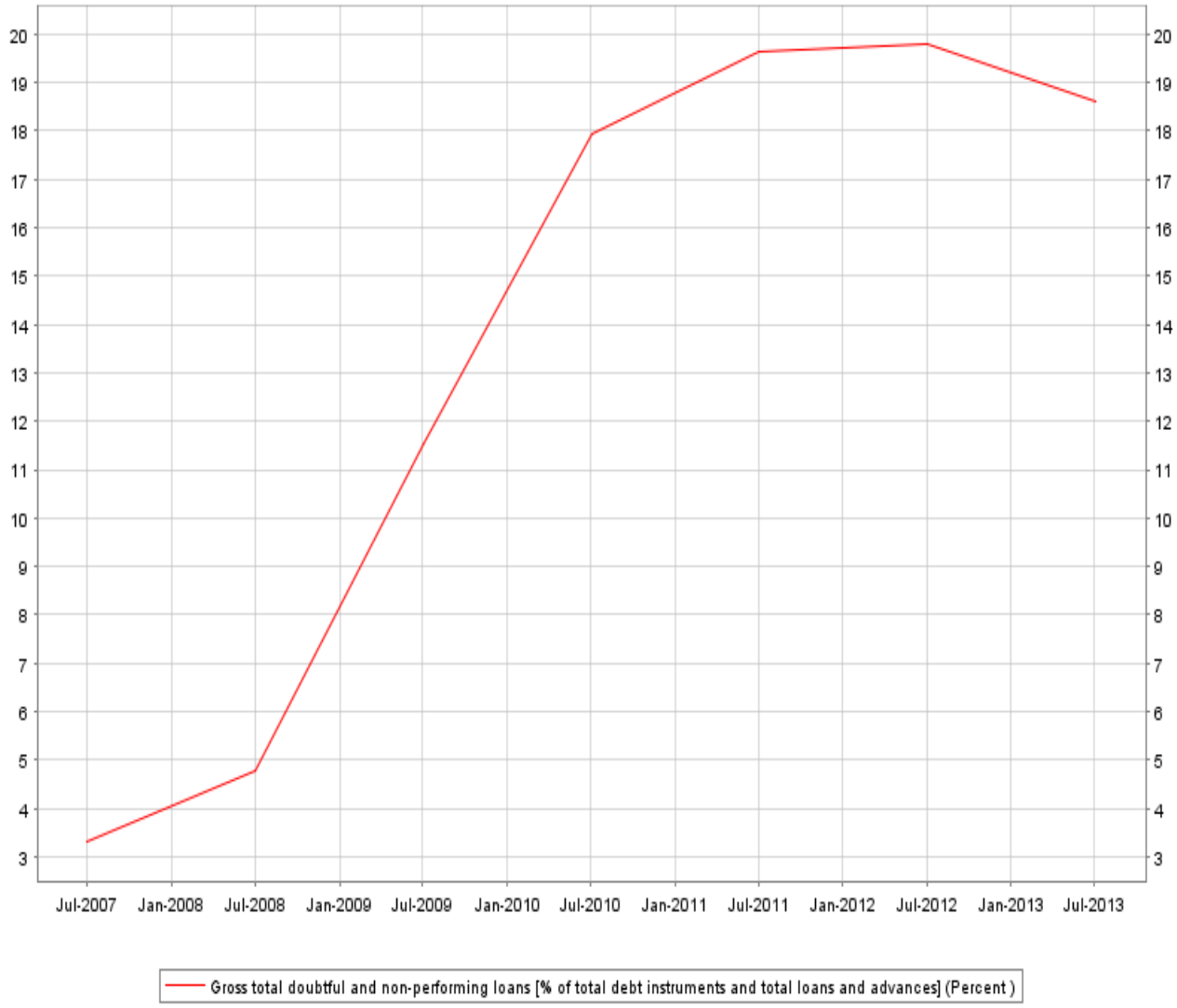

Figure 1. Gross total doubtful and non-performing loans in the banking sector of Bulgaria (2007-2013) (As % of total debt instruments and advances) (In %)

Source: ECB Statistics database, http://sdw.ecb.europa.eu

Under the conditions of economic stagnation it has become necessary to improve the discipline of the banks in applying the regulation for the provision of non-performing loans and their explicit management. The outcome of the more strict discipline of the banks' management of non-performing loans has been the relative reduction of the rate of annual growth of non-performing loans (year to year change in percent) compared to their percentage growth as a share of total debt instruments and loans in the banking sector (See Figure 2.).

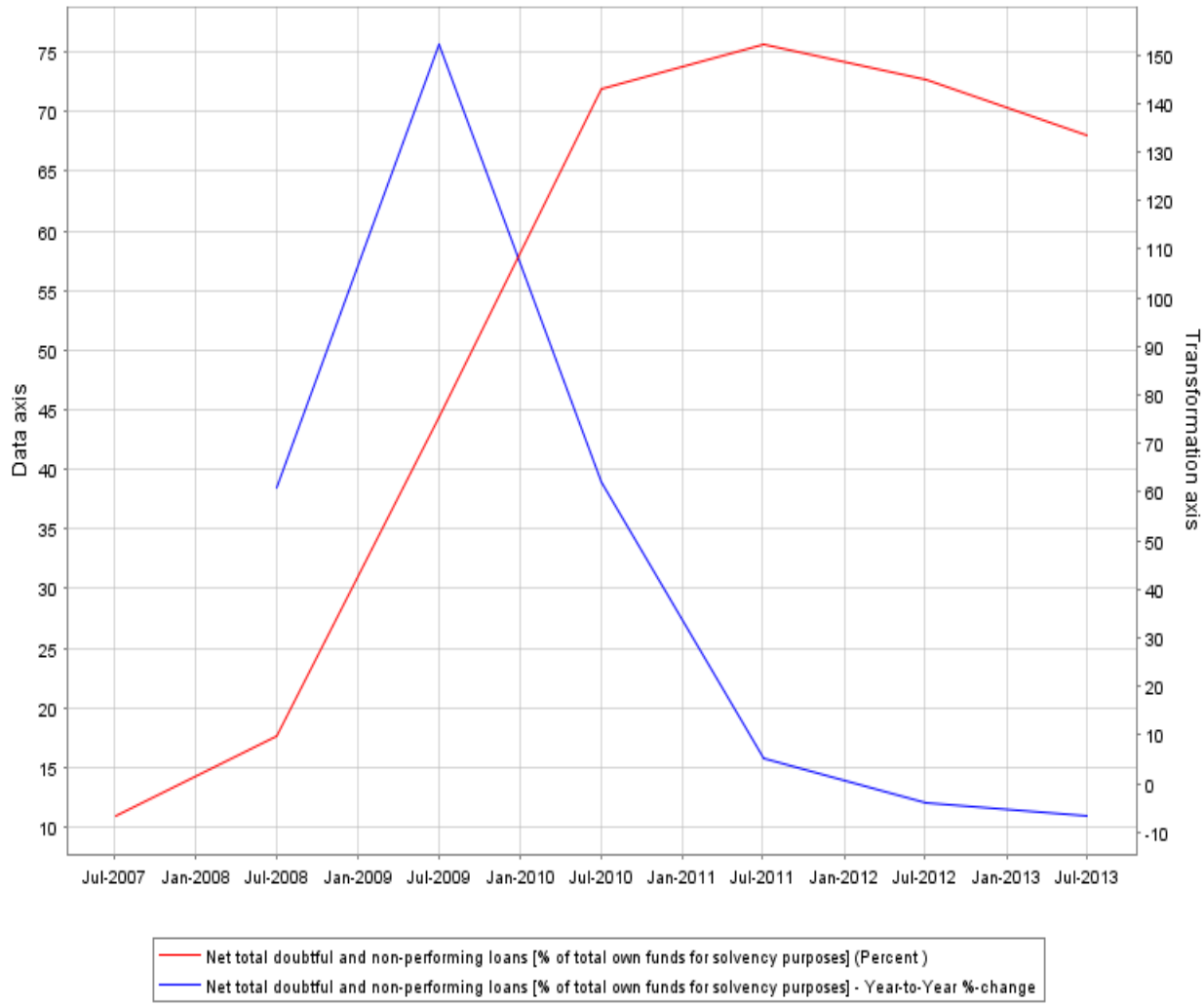

Figure 2. Net total doubtful and non-performing loans in the banking sector of Bulgaria (as % of total own funds for solvency purposes (2007-2013) in % and year to year % change

Source: ECB Statistics database, http://sdw.ecb.europa.eu

The cost of the management of doubtful and non-performing loans has been increased as well. As shown in Figure 3. The total sum of provisions of doubtful and non-performing loans has been on a rise in parallel with the annual growth of the gross total non-performing loans as a share of all debt instruments and loans in the banking sector.

At the same as pointed out the category of “doubtful’ loans has also been given due consideration. For some of these loans the need of debt restructuring has become a relevant factor in the context of the bank lending strategies. It gives rise to some actual increase in demand for loans following the decision of corporations with outstanding debt obligations to alter the terms and conditions of these loans. Generally, companies use the debt restructuring due to the banks to avoid defaulting on existing debt or to take advantage of lower interest rates or lower interest rate expectations.

In the context of the Bulgarian case the debt restructuring should not be interpreted as the switching between different types of debt to the banks (such as MFI loans and debt securities) but as redesigning the terms of repayment of the restructured bank loan with regard to the debt capacity of the relevant indebted entity.

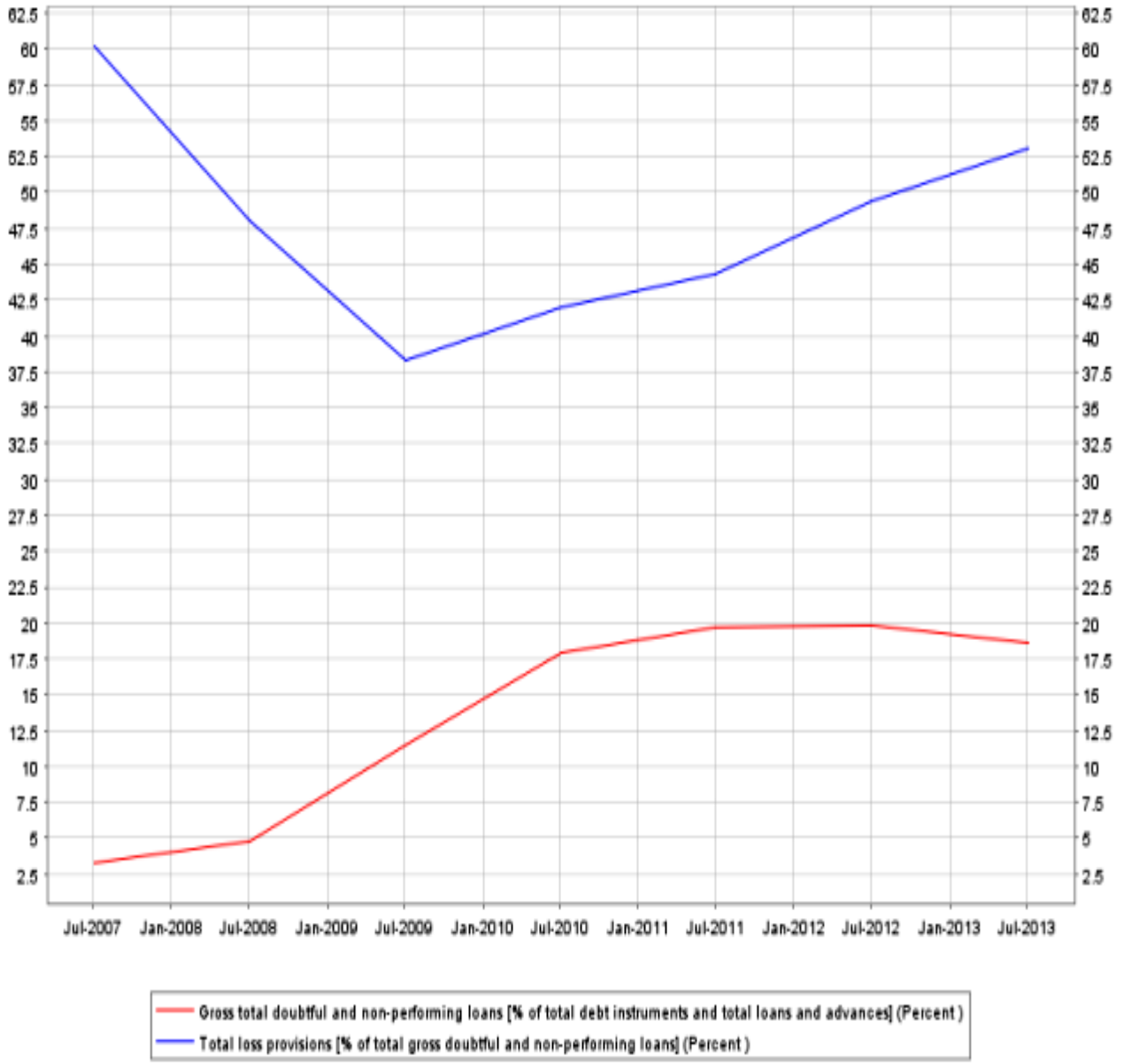

Figure 3. Gross total doubtful and non-performing loans (% of total debt instruments and total provisions (as % of total gross doubtful and non-performing loans) (percent)

In times of lowering the rates of economic growth and stagnating credit the management of banks' liabilities has become an issue of concern. The banks' competition for attracting new deposits has been growing in Bulgaria since 2008 onwards. Gradually the size of NPLs has been reduced and this has made the NPLs manageable and consistent with the other major macroeconomic systems (government finance, money and capital markets). At the same time the imbalances of the *growth of deposits i*n the main banks in Bulgaria has been growing especially due to the deposits made by other clients (enterprises and households) than from credit institutions. (See Figure 4).

The competition among banks has been for attracting new deposits.Besides the deposits from institutions other than credit institutions have increased at a higher rate and thus the financial flows to the banking system has allowed a greater area of freedom for the banks to rely on the increased liquidity in the banking system.

However this issue of the disposable liquidity of the banks which most aggressively have increased the deposits has been underestimated as risk for the adequate bank performance (Raiffeisen (2011).The overview of the banks deposit growth that has been observed in the Bulgarian banking sector in the period (2007- first quarter of 2014) confirms that the most striking example of such rapid growth of attracted deposits is the Corporate Commercial bank which has run into insolvency crisis in June 2014. Its deposits have grown without being paid the due concern by the banking supervision on the grounds of the "too- big-to fail-syndrome".

- Total deposits other than from credit institutions in domestic banking groups and stand alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches reporting sector, [% of total assets], Percentage

-Total deposits other than from credit institutions in domestic banking groups and stand alone banks, foreign (EU and non-EU) controlled subsidiaries and foreign (EU and non-EU) controlled branches reporting sector, [% of total assets], year to year %change

Figure 4. Total deposits other than from credit institutions [% of total assets] in the banking sector in Bulgaria

Source: ECB Statistics on Consolidated Banking Data (2007-2013)

The crisis of the Corporate commercial bank in Bulgaria presents a case of moral hazard of too-big-to-fail bank which has become risk taker due to its specific credit policy and the neglected issues of proper evaluation of the risks of non performing loans (Louzis et al, 2011). A policy concern is that as a too-big-to-fail bank this bank has resorted to excessive risk taking by much higher interest rate on deposits. Since market discipline has not been imposed neither by iits shareholders and management nor by the Banking Supervision has the bank's credit portfolio undergone excessive growth in recent years. The expected protection of deposits by the Deposit Guarantee fund and by the Government in case of a bank's insolvency has also encouraged the risk of too-big to-fail bank. Consequently, as a large bank the Corporate bank has increased its leverage too much and has acted as usually in such cases banks do by extending loans to companies related to the main shareholder and to lower quality borrowers (Louzis et al, 2011,p.34).

Banks'strategies to NPLs

Given the negative trend of the sharp rise of NPLs in 2008-2012 the NPL resolution has become a major issue of concern in the banking sector. The NPLs resolution has been proceeding at a steady

but low speed due to the fact that the economic recovery in Bulgaria has been weak and the debt market has not been properly developed to help the banks sell their toxic assets.

The strategies of banks towards NPLs have diversified considerably but there are several main trends of their evolution.

First, the NPLs have increased the necessity of reappraisal of the credit discipline as bank's financial health is largely dependent upon the extent and size of performing assets. Credit losses are equivalent to capital losses. Based on data published by the BNB the exposures past due over 90 and over 180 days rose BGN 234 million (2.4 per cent) in 2013.The share of both categories in gross loans (excluding ones to credit institutions) rose

to 17.1 by 30 June from 16.6 per cent at the end of 2012 the net non-performing loans past due over 90 days 52 to net loans ratio also rose to 10.7 per cent, while remaining lower than the gross ratio. The larger share of net nonperforming loans reflected mainly BGN 146 million corporate exposure growth. Non-performing mortgages and consumer loans increased BGN 59 million and BGN 18 million.(2013). Banks responded to sharpened credit risk by raising provisions. An increase in non-performing loan (NPL) has prolonged adverse impacts on bank's balance sheet having consequential effect of erosion of capital impairing earning streams, profitability, liquidity and solvency.

Due to the economic recession the banks still are not acting fully on the basis of the understanding that any compromise with the quality of assets will be a contributing factor towards enhancement of NPLs. The bank management has no choice but to stay focused on the issue of keeping the growth of credit portfolio performing to the maximum extent though the risks may increase due to the worse business environment (Hennie, 2003). The banks' care taking of the borrowers still needs to be upgraded as methods of monitoring the credit discipline (BNB, 2013). As preventive measures against NPLs the maintaining of methodologically consistent framework of analysis, monitoring and control of the borrower's execution of the credit terms is a substantial part of improving the bank's credit policy. The experience of many countries also confirms the importance of making the right choice of the strategic priorities for NPLs management (Masoom, 2013). The forecasting methods of credit risk analysis also have to play a role in the preventive strategies as regards the NPLs by making use of internationally acknowledged good practices (Maggi, Guida, 2009).

Second, a number of bank strategic options are implemented on the basis of wider understanding of forbearance.

As a special agreement between the bank and the borrower the forbearance is meant to delay aforeclosure.The bank as a lender delays its right to exercise foreclosure if the borrower can catch up to his payment schedule in a certain time. This period and the repayment plan depend on the details of the agreement that are accepted by both parties. The restructuring of NPLs in this way gains importance and calls for innovative approaches to the specific clients.

The implications of implementation of a wide range of options for foreclearance are positive for the banks. In cases when they do not sell NPLs to specific debt collectors' companies (or transfer the bad loans collection to companies owned by them), the banks apply themselves some of the following options: (1) A reduced loan rate %; (2) A reduced repayment (above Interest only,i.e. positive amortising; (3) A reduced repayment (below interest only,i.e. negative amortising) ;(4) Interest only ;(5) A full moratorium on payments for some period of time; (6) Split Mortgage.

The importance of keeping the proper distinction between the forbearance exposures and the non-performing exposures will be part of enacting the EU in Bulgaria. As seen in Table 1 the forborne loans and debt securities can be performing, cured loans and non-performing loans.

There are definitions proposed by the European Banking Authority (EBA) for forbearance exposures and non-performing exposures and templates in application of Article 99(4) of Regulation EU No 575/2013 (Capital Requirements Regulation (CRR)). Once adopted by the European Commission, they will form an addendum to the FINREP (financial reporting) framework as defined by the implementing technical standards (ITS) on supervisory reporting approved by the European Commission and published on 28 June 2014. In the current context of uncertainties surrounding asset quality for European banks, the EBA has provided supervisors with additional tools to assess on a comparable basis across the European Union the level of banks' forbearance activities and non-performing exposures. Thus the implementation of these strategic options to manage the NPLs in the future may become a new important area of banking activities to be

reported in compliance with the EU law. In cases of write-offs of non-performing loans the enforcement of collateral tends to depend heavily on non-market intervention and cumbersome judicial processes. Introducing regulation with an emphasis on realistic collateral valuation and asset classification may improve the bank resolution. Due to the crisis impact the provisioning of restructured loans to avoid ever-greening and ensure resolution to all truly nonperforming assets has received due attention.

Table 1

Forbearance and its relevance to the banking strategies to NPLs

Performing past due below 90 days	**Cured** On- and off-balance sheet exposures that exited the non-performing category including forborne exposures	**Non-performing** **Generic criteria: (past due more than 90 days or unlikely to pay)**
Fully performing *Loans and securities that are not past due and without risk of non-repayment and performing off-balance sheets items* Performing assets past due below 90 days *Loans and securities between 1-30 days past due* *Loans and securities between 31-60 days past due* *Loans and securities between 61-90 days past due*	• Modification of terms and conditions • Refinancing • Other forbearances	Defaulted banking book (loans and securities) *Fair value option* Impaired: *fair value through other comprehensive income* Amortized cost Off-balance sheet items: *Loan commitement's* *Financial guarantees(except derivatives)* *Other commitment's*

Source: EBA (2014) EBA FINAL draft Implementing Technical Standards on Supervisory reporting on forbearance and non-performing exposures under article 99(4) of Regulation (EU) No 575/2013, p.6, EBA/ITS/2013/03/rev1, p.6.

The write-off of fully provisioned NPLs in some cases is a preferable solution. Such a proactive strategic approach is gaining importance when lengthly liquidations through legal procedures may cause rising expenditures of the bank that has become an owner of the debtor's assets as collateral. Though the sale of collaterals may end with low recoveries on bad loans. the cleaning of bad loans could be a better solution for the bank than the decapitalisation of the collateral.

The market revaluation of collaterals of NPLs tends to reduce the price of assets and the banks encounter great difficulties in execution of NPLs from the ongoing slowdown of the Bulgarian economy. Banks are flexible in adjusting the payment terms of cooperative distressed borrowers, but generally avoid interest capitalization or refinancing.

Third, the sale of problem bank loan portfolios and outsourcing of their collection to separate companies registered under the Trade law in Bulgaria presents an important instrument of encouraged out-of-court restructurings. This strategy to NPLs is to make them a performing debt with a loan modification as agreed with the collectors' company. The investor who purchased the NPL has to make the debt on credit performing and the borrowers will be making their payments to the investor as long as they repay their debt. Once the debt becomes performing it also becomes much more valuable and could be sold on the market to another investor who is looking for a

performing investment. This approach to NPL resolution through an effective risk asset management strategy, has given good results where NPLs are identified, organized and then resolved. This usually involves the establishment of an asset management company (AMC) by the bank itself or by resorting to an independent collectors' company.
Forth, legislatative changes in favour of making better the legal terms and providing availability of choices to the borrower to repay his debt have been introduced since 2012. These changes may encourage application of such measures of direct intervention in dealing with the NPL problem, as for instance setting some barriers to the interest rate burden on consumer credits offered by nonbanking institutions. Some recently introduced legal treatments as regards banking credits are also a novelty (notably the possibility of early repayment schemes without banks' imposing a tax) but yet have not been taken into a wider application by the banks.

The case of Non-performing banks: new agenda for the bank regulation of non-performing assets and Banking supervision

The bank crisis in Bulgaria of two interrelated private banks (Corporate commercial bank and Victoria bank) has demonstrated the weaknesses in the bank management with regard to asset quality and prudential supervision of bank's management of assets and liabilities. The massive bank run of 20 of June 2014 resulted in suspending the payments to customers of the Corporate Commercial Bank AD ('KTB') and the Bulgarian National Bank ('BNB') Governing Council decided to place it under conservatorship due to a risk of insolvency, for a period of three months.

As a consequence, the fulfilment of all of KTB's obligations have been suspended (including giving depositors access to their funds – both depositors whose deposits benefit from the cover provided by Directive 94/19/EC ('protected deposits' and 'protected depositors') and depositors whose deposits do not benefit from that cover( ).

Further deepening of the bank crisis has been the suspension of the payments to customers by Victoria Commercial Bank EAD ('VCB') (whose capital is 100 percent held by KTB) on 22 June 2014, as the BNB Governing Council decided to place it under special supervision due to a risk of insolvency, for a period of three months. Thus the fulfilment of all of VCB's obligations has been suspended (including giving depositors access to their funds – both protected depositors and non-protected depositors).

Since the start of the crisis the issue of the deposit guarantees at the banks has become extremely controversial case of *bank liabilities management*. At the same time while the two banks have been placed under conservatorship the issues of the bad management *of banks' assets* have become also a concern due to the fact that the preliminary information brought to the public has focused on the difficulties to evaluate the state of the assets. Thus on 25 June 2014, following BNB's instructions, a review of the KTB bank group's assets and liabilities by independent external auditors was ordered by the conservators and on 11 July 2014, the BNB publicly announced the results of these audits.

However, due to a *lack of important information on the financial position and/or the proper utilization of loans in the loan files regarding a specific category of borrowers*, the auditors were requested to make a full evaluation of all KTB assets, which is due by 20 October 2014, at the latest. The political situation in Bulgaria worsened with the fall of the former Coalition government and the Parliament has suspended its sessions. This has made impossible to adopt a draft special law as conceived the BNB and the Ministry of Finance in order to enact certain measures, such as the acquisition of VCB by the Bulgarian state, the transfer of certain assets and liabilities of the KTB to the then state owned VCB and the revocation of KTB's bank license and to declare the KTB bankrupt. This law could not be agreed on, and is therefore not yet adopted.

The banking crisis has raised several *issues for the state of the banking and financial system.*

On one hand, the problems of the two banks have become indicative for the need to focus on the evaluation of the risks related to the banks' assets management. The European Banking Authority underlined the need of risk assessment of banks' assets in its recommendations for the banking sector in EU in 2013. Bulgaria has not applied for accession to the EBA but at present there is a pending need of more strict regulation and assets management in compliance with the EU law (EBA, 2014).

On the other hand, according to the EU law *the deposit protection* is an essential element in the completion of the EU internal market, and it is as essential as the prudential rules for the completion of the single banking market. This is also an indispensable supplement to the system of supervision of credit institutions on account of the solidarity it creates amongst all the institutions in a given financial market in the event of the failure of any of them. The bank crisis has a negative impact on the financial sector as a whole and the difficulties encountered are indicative for the necessity of reforms for further integration to the EU. Even in the area of the regulation of the guaranteed deposits which has been comparatively easily harmonized with the EU since 2008 there seem to be a great need of better compliance with the EU regulation. i

Under Article 1(3)(i) of Directive 94/19/EC a deposit is considered 'unavailable' if the "deposit is due and payable but has not been paid by a credit institution under the legal contractual conditions applicable thereto, where the relevant competent authorities have determined that in their view the credit institution concerned appears to be unable for the time being, for reasons which are directly related to its financial circumstances, to repay the deposit and to have no current prospect of being able to do so. The competent authorities shall make that determination as soon as possible and in any event no later than five working days after first becoming satisfied that a credit institution has failed to repay deposits which are due and payable"(EC,2009).

Article 10(1) of Directive 94/19/EC states that "deposit guarantee schemes shall be in a position to pay duly verified claims by depositors in respect of unavailable deposits within 20 working days of the date on which the competent authorities make a determination as referred to in Article 1(3)(i) or a judicial authority makes a ruling as referred to in Article 1(3)(ii)." Besides the Recital 12 to Directive 2009/14/EC2 explains that "Deposits may be considered unavailable once early intervention or reorganisation measures have been unsuccessful. This should not prevent competent authorities from making further restructuring efforts during the payout delay (EC,2009)."

The reference to early intervention measures demonstrates that deposits may be considered unavailable without a credit institution being subject to insolvency proceedings, while it is also clear that the process for payment of protected deposits should not be delayed once initial reorganisation measures have failed.

The situation of the bank crisis management in Bulgaria has become incompatible with the with the Directive 94/19/EC. Since 31 July 2014 the EBA made a preliminary enquiry requesting information from the BNB, particularly, on the ability of depositors to access their deposits and, in case of unavailability of deposits, the availability of recourse to the Bulgarian Deposit Insurance Fund ('BDIF'), after receiving information on the inability of depositors to access their deposits in KTB, and in accordance with Article 17 of the Regulation.

The BNB's position has been argument by several main points according to the Bulgarian national legislation:

First, according to the present Bulgarian legislation, the repayment of guaranteed deposits is possible when a bank's licence is withdrawn by the BNB. Within the timeframes provided for in Directive 94/19/EC it is foreseen to repay guaranteed deposits within 20 working days of the date on which the competent authorities make a determination regarding the unavailability of the credit institution's deposits or a judicial authority makes a ruling which has the effect of suspending depositor's ability to make claims against it) (BNB, BFGD, 2014).

Second, the decision for withdrawal of bank's license is required to be taken by the BNB within five business days of establishing the insolvency of the credit institution. However, for the purpose of resolving a credit institution at risk of insolvency, the BNB may place such a credit institution under conservatorship. While under conservatorship, the bank may be subject to different measures, including suspension of payment of obligations. On 16 September 2014 the BNB Governing Council extended the conservatorship of KTB and VCB to 20 and 22 November 2014 respectively. A final decision with regard to KTB's future is expected to be made between 1 and 20 November 2014.

Third, the BNB argues that in case the BDIF repays the guaranteed amount of the deposits placed with a bank under conservatorship while its financial situation is being reviewed, and with no decision reached for its insolvency yet, the bank may lose the larger part of its depositors, which would make its resolution pointless or impossible.

Fourth, BNB also argues that where the European Commission decides that the national provisions do not comply in full with Directive 94/19/EC, measures should be taken to amend them within a short timeframe but this cannot be done before an amendment of the of the Bulgarian legislation adopted by the Bulgarian Parliament. Following dissolution of the parliament in August a new parliament has not been established yet after the elections held on 4 October. Thus thee option of a possible interim partial access to deposits is not covered by the currently effective legislation either, and cannot be realized without the relevant legal amendments.

Fifth, finally, the BNB states that consideration should be given to the fact that the

guaranteed amount of deposits placed with KTB and its subsidiary VCB is higher than the funds contributions accumulated at the BDIF.The BDIF has not made any payment to depositors so far. The BDIF has informed the EBA that it received a number of claims for payments from depositors, and has received over 500 inquiries regarding the status of KTB and VCB. The BDIF has also stated that Bulgarian law provides for payment of verified protected deposits without individual claims being necessary, but there is no legal procedural provision with respect to payment of individual claims. It considers that under the Bulgarian implementation of Directive 94/19/EC any full or partial payment by the BDIF would require an explicit act by the BNB or a judicial authority.

In June 2014 the banking system in Bulgaria was under pressure as a result of

active withdrawal of funds attracted by both credit institutions - banking group KTB were placed under special supervision. Problems in the banking system proved inevitably negative impact on the Bulgarian capital market , which is characterized by relatively downstream development. All BSE indices (SOFIX, BGBX40, BGTR30 and BGREIT) noted seriously decrease on a monthly basis respectively -8.9% , -9.9% , -7.3% and -3.7% . The problems of " Corporate Commercial Bank" (KTB) have negative impact on the bank's shares traded on the BSE in the period 16 to 20 June the price of CCB shares fell by -9.8% and 86.501 lev / share (opening price on Monday) is dropped to 78.05 lev / share (closing price on Friday) when he was stopped trading with them. Placed under special supervision and suspension of activities of banking CCB group at the end of . June 2014 led to a number of problems in the non-banking financial sector:

- An inability both companies and investment firms to fulfill their obligations under the Markets in Financial Instruments (FIMA), which leads to serious risks to the rights and interests of bank customers in their capacity investment firms due to the inability of its customers to dispose of own funds ;
- other investment firms as own funds and their customers remain blocked in the banking group KTB
- management companies have invested funds managed by them collective investment schemes in securities issued by the CCB or in deposits in both credit institutions , leading to a violation of the requirement assets in which they invest are fast liquid;
- After cessation of the activities the two banks can not perform obligations in their capacity as trustee for the holders of bonds , which creates risks to the rights and interests of the holders of such emissions concern for the rights and interests of investors receiving services by the two banks, in their capacity as investment intermediaries and rights shareholders of CCB as a public company and the holders of bonds CCB in its capacity as issuer;

The possibility of contagion in other credit institutions and in the non-bankingl sector has worsened. Based on the available information collected and blocked funds in the banking group KTB under the form of deposits and current accounts investment firms , management companies and mutual funds amounted to 42.9 million. In the development of the adverse scenario as the bankruptcy of Corporate Commercial Banking Group, the direct losses from blocked funds in them in the form of deposits and current accounts, estimated at 41.1 mln for the insurance segment, not considering the loss of accrued interest on these deposits (CFS,2014).The direct losses from holdings of shares and bonds of the CCB are assessed to amount to a larger sum of losses together with the indirect losses that would be suffered as a result of the investments in collective investment schemes which have been blocked as funds in the banking group KTB .

The estimated total losses only on the side of the insurance market amounted to almost 19 million, and all the data show clearly that exposure of pension funds to the CCB are relatively small in adverse scenarios and other things being equal, the impact will be only in the direction of reducing the realized yield. These estimates should be regarded as a lower limit of possible losses of the

non-banking financial sector, as due to the interconnectedness of participants financial system. However any disturbance on the participants in non-banking financial sector as a result of the bankruptcy of CCB can become possible. Contagion in both banking institutions and other credit non-banking institutions and among those in the non-banking financial sector increase the amount of losses and significantly raise the price of the overcoming the crisis with public money.

In the present case, by suspending all obligations of KTB and VCB for more than three months the BNB made deposits unavailable within the meaning of Article 1(3)(i) of Directive 94/19/EC. Under conservatorship state it is questionable what initial reorganisation measures are undertaken and if not why they have not been undertaken.

The suspension of the access to deposits has been imposed for reasons which are directly related to the financial circumstances of KTB and VCB. This derives from the fact that the decision was based on Article 115(1) and (2) point 2 and 3 of the Bulgarian Law of Credit Institutions which requires that "the bank's liquid assets in BNB's opinion will be insufficient to enable the bank to fulfil its obligations on the day they become due, or the bank has not met in time one or more of its obligations to its creditors when they have become due".

The first condition seems therefore to have been met on 20 and 22 June 2014 respectively for the two banks, and continues to be met. From that point, KTB and VCB were unable to repay deposits which are due and payable. Such inability resulted from the depletion of the liquidity of KTB and VCB and was perpetuated by the moratorium.

The second condition also appears to be met. There is "no current prospect" of deposits being repaid if the credit institution cannot be expected to regain its ability to repay deposits in the short term. The deposit-guarantee scheme required under Directive 94/19/EC serves to insure not only the nominal value of covered deposits but also provides, at least to some extent, a substitute for the otherwise availability of such deposits in accordance with their terms. The determination that deposits are unavailable can therefore only be avoided if access to deposits is expected to be resumed within a very short time period.

The recommendation of the European Banking Authority has underlined the fact that any margin available to the Bulgarian national bank has been overstepped in this particular case, with deposits still unavailable more than three months after their initial unavailability and, as conservatorship having been extended to 20/22 November 2014, no immediate prospects of those deposits becoming available by that time.

The analysis of the Bulgarian case shows a number of arguments for the need to refer to the EU Directive for early intervention measures because deposits at the two banks under under conservatorship may be considered unavailable without a credit institution being subject to insolvency proceedings, while it is also clear that the process for payment of protected deposits should not be delayed once initial reorganisation measures have failed (Directive 94/19/EC,2009, p. 3). Besides the delay in the crisis management worsens the uncertainties of the conflicts and problems that have arisen.

Conclusion

The crisis of trust in the Bulgarian banking system has become a result not so much because of mismanagement of NPLs but a result of neglected internal banking control on the mismatch of assets-liabilities bank management and lack of strict and responsible. Banking Supervision on a bank which has grown to be "too-big-to–fail". Thus at present the setting of adequate priorities in the policy agenda of the banks themselves has to ensure that their risk asset portfolio is performing to the maximum extent by exercising professional due diligence from the beginning process of the borrower selection all along to the ultimate end of repayment of credits..The improvement of the implementation of the EU law as regards the supervision and the good corporate governance in the banking sector is considered to be the necessary condition for the banks and non-banking financial institutions to provide credits in favour of stimulating growth. Improved governance and future steps of Bulgaria for accession to the EBA and to prepare for entry in the European Monetary Union are to limit unmanageable risks that could be cleared only at the cost of public money and with the funds of the Deposit guarantee scheme.

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MARKET AND TRADE RELATED DETERMINANTS OF ECONOMIC INTEGRATION AMONG DEVELOPING COUNTRIES[80]

Eduard MARINOV[81]

Abstract

Regional integration is often viewed as a way to support development and economic growth in developing countries through the related with it benefits to trade and welfare. There is a clear distinction between the integration processes among developed countries where mainly the classic static and dynamic effects described by classic and new integration theory are sought, and those among developing and least developed countries – where the reasoning, the expected benefits and the clear constrains to the participation in integration arrangements are different. The current paper tries to come up with a conclusion on what parts of classic and new integration are applicable to the integration arrangement among developing countries and tries to summarize these theories in three main groups – general economic, market-related and trade-related factors and effects.

Keywords*: Economic Integration Theory, Developing Countries Integration*

JEL classification*: F15, N77*

Introduction

Regional economic integration is one of the main trends in the development of international economic relations in the last few decades. There are multiple examples, practically everywhere in the world, which demonstrate that it is not an isolated event, but an actual global phenomenon. The opportunities that are presented by the different forms of economic integration arrangements are growing and so are the means and ways for their utilization.

Regional integration is often viewed as a way to support development and economic growth in developing countries through the related with it benefits to trade and welfare. In most cases, theories of economic integration and its benefits – of dynamic ones, but even more of static ones, are not fully applicable to integration agreements among developing and least developed countries. Meier (Meier, 1960) claims that Viner's analysis has limited or no relevance to integration among developing countries. Even Balassa (Balassa, 1965, p.16) claims that theoretical literature on economic integration issues discusses customs unions only in industrialised countries. Their problems and environment are not related to economic development, but more to relative changes of production and consumption features.

The traditional theory of economic integration relies on many factors in order to reach the conclusion that net static effects determine the welfare effects of integration. Based on them, some generalisations can be made about the motivation of countries to participate in integration processes. The paper will try to distinguish those factors and effects of economic integration agreements that are relevant to developing countries. The economic determinants of integration agreements that influence the motivation of developing countries to participate in integration, in terms of both expected gains and feared negative consequences, are presented here in three main groups – general economic, market-related and trade-related factors and effects.

General economic determinants

Development perspective

Many researchers claim that when it comes to developing countries, economic integration should be regarded an instrument for their economic development, and not that much as customs or even trade policy (Abdel Jaber, 1971; Balassa and Stoutjesdijk, 1975). Integration theory is more focused on better resource allocation while development theory and policy deals more with the benefits from faster economic growth in the long term and the utilization of under- or not at all employed resources and production factors. Thus in many developing countries integration efforts

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are aimed at or more focused on the implementation of common projects in the field of development – poverty reduction, support for the development of healthcare and education systems, achievement and preservation of regional security.

Macroeconomic policy coordination

Shams (Shams, 2003, p.9-10) claims that even if all trade prerequisites are fulfilled when an integration agreement among developing countries is signed, the divergence of their macroeconomic policies, combined with the lack of coordination among member-states, could reduce the potential gains of integration, especially regarding the increase of interregional trade.

The issue of macroeconomic policy coordination dates back to the studies of Kahnert (Kahnert et al, 1969) and Hirschman, (Hirschman, 1971) who argue that in order for trade agreements to be durable, participating countries should try to uniform their internal monetary and foreign exchange policies (Hirschman, 1971, p. 22) and that this could be more important in promoting trade between the member countries than the customs preferences themselves. The economic areas that should be harmonised are not only limited to macroeconomic policy, but could also include industrial, social, transport, environmental policies, etc.

Size of the participating countries

Traditional theory assumes that the larger (in economic terms) the participating countries are, the more substantial the benefits of integration will be. According to Abdel Jaber (Abdel Jaber, 1971, p.262) if the size of the economy is measured by the gross national product, integration benefits for developing countries are negligibly small. Balassa on the other hand claims that integration gains depend not only on the size of the countries participating in the integration arrangement, but also on their rate of economic growth. Thus, as developing economies tend to grow at higher rates than already developed ones, the benefits of integration for them would be even bigger (Balassa, 1961, p.38).

Another possible measurement of the size of the integration community is the number of population. Under this criterion, developing countries will surely benefit from integration as they are usually over populated (Hosny, 2013, p.144).

Integration effects for small countries

Kreinin claims that potential gains from economic integration can be observed more clearly in small and medium sized member-states (Kreinin, 1964, p.193-194). If integration (and trade as a whole) is carried out between a small and a large country, the benefits for the small one are bigger because there is more demand for its exports. This is very substantial when the small country is a developing one and the large country is a developed one, with higher purchasing power.

A similar view is expressed by Velko Marinov, according to who in the environment of a bigger market, the comparative advantages of small national economies are manifested in their pure nature. They improve their production and market structure and increase their efficiency. “Positive effects of the participation of small countries in economic integration are achieved in medium and long term…, they assess the positive dynamic effects as far more substantial, which justifies the short term static losses” (Marinov, 1999, p. 110-111).

The argument of the positive effect of integration on small countries has its opponents. Helleiner for instance claims that the disproportion of gains in favour of the larger country is inevitable and is a result of the disparity of the economic potential of the two countries. He argues that the small country is an unequal partner who is forced to adjust to the economic and price structure in the larger member-state (Helleiner, C.K., 1996, as in Marinov, 1999, p. 112).

Market-related determinants

The welfare effects of economic integration among developing countries should not be limited only to those on production and consumption, but should also include the potential positive impact on employment, productivity, income level, specialization, competitiveness, etc.

Employment and productivity effects

It is established that in most developing countries exists a situation of generally low productivity plus mounting unemployment (Hosny, 2013, p. 141). Therefore when there is trade diversion that leads to labour force to be transferred from low-productive sectors and activities to ones with higher value added, welfare will increase.

The integration benefits to employment are even more obvious (Sakamoto, 1969, p. 283). On one hand, they are related to the fact that the changes in the geographical distribution of production influence labour demand, and on the other hand the bigger flows of workers influences labour force supply (Longi and Nijkamp, 2007, p. 3), thus increasing employment possibilities and rates.

Production specialization

Developing countries in general are specialized in the production of primary products. According to Abdel Jaber (Abdel Jaber, 1971, p.256-257) there is nothing wrong with that as long as the economic surplus gained from this type of production could be reallocated and invested efficiently in other sectors. That however is rarely what happens in reality, thus most developing countries adopt a trade policy of diversification and import substitution to accelerate economic growth. Balanced growth can be achieved by small developing countries by increasing the size of the market, benefiting from economies of scale, and expanding their inter-industry transactions, i.e. through economic integration. For these effects to be achieved however, a strong commitment is required – both in economic and political terms.

Protection for industrial development

According to Viner, in some cases economic integration can be seen as a step towards free trade, but in others it is one towards more protection (Viner, 1950, p.41-49). There are some researchers who argue that protection trade regimes could be beneficial to developing countries. Cooper and Massell for instance believe that the main goal of integration agreements among developing countries is to support their industrial development (Cooper and Massell, 1965, p.462). This could be achieved through protection because integration, according to Sakamoto (Sakamoto, 1969, p.283-284), is equivalent to import substitution, which is a tool to support industrial development. Cooper and Massell come to the conclusion that when assessing the effects of a customs union on each member-state, one must take into account not only the change in national income, but also the development and size of each country's industry sector (Cooper and Massell, 1965, p.468).

If two developing countries create a customs union and there is a trade diversion in industrial products, welfare from the point of view of consumption, will increase when the tariffs are removed. On the other hand – from the point of view of production – welfare will decrease (viewed as an effective use of resources) because it will be replaced with production in one of the developing member-states that is more ineffective compared to that of developed third-countries. However, if such trade diversion is combined with a common external tariff that protects domestic industry, this could lead to the development of the industrial sector in both member-states. This would be particularly useful if the two developing countries are complementary, because this way each of them will expand their industrial production to supply the market in the other one (Cooper and Massell, 1965, p.475).

According to Elkan (Elkan, 1975, p. 59 -68), however, it is likely for the benefits of integration in terms of industrial production in developing countries to be unevenly distributed among the member-states. He calls this effect "backwash" - where much of the economic benefits of integration are concentrated in one or a small number of member-states (Elkan, 1975, p. 58), while economically weaker and geographically distant countries attain less benefits compared to their partners in the community.

International competitiveness

In the past, developing countries have sought motivation for economic integration in the benefits from trade diversion and import-substituting industrialization. Later on, with the introduction of the ideas of the dynamic effects of integration, they began to find arguments for integration in the economies of scale, investment creation, technology transfer, etc. Nowadays, however, the integration initiatives of developing countries far exceed those arguments – most of them pursue policies of trade liberalization and deregulation as part of their overall stabilization programs agreed with international organizations. This approach has the goal to make economic integration policies compatible and complementary to other policies in order to promote international competitiveness. Therefore, according Hosni, most developing countries regard economic integration as a tool for more competitiveness in a global economy (Hosny, 2013, p. 143).

Competition and complementarity

Even Viner suggests that countries producing competing (similar) products gain more benefits from integration than those producing complementary (different) ones (Viner, 1950). This comes from the fact that the more significant the difference in the price of the same goods in the potential member-states is, the greater the benefit will be (Makower and Morton, 1961, p. 35).

This should favour developing countries, because they specialize mainly in the export of products of the primary sector, thus competing in a Viner's sense. Although this is true, the fact that the major part of their exports is directed to developed countries reduces the benefits of economic integration, because it actually does not increase the volume of intraregional trade. The very category of the products of the primary sector is too large and, if split, one can see the potential benefits of integration (Abdel Jaber, 1971, p.261). Therefore Balassa argues that Viner's understanding of the criteria for competitiveness and complementarity is not at all applicable to developing countries (Balassa, 1965, p.25). Their goal actually should be to achieve a significant degree of complementarity, thus increasing the volume of intraregional trade.

More recent studies (e.g. Inotai, 1991) continue to support the thesis that in the cases of integration between developing countries complementarity and diversity of economic structures is better. In an integration agreement between similar (competing) countries, trade comes as a result of intra-sector specialization – trade expansion of this type is observed in the developed industrial countries where the size of the market and the income rate support specialization. However, this is obviously less likely for smaller and poorer markets such as those of developing countries, and therefore integration among heterogeneous (complimentary) countries is more beneficial for them.

Trade-related determinants

Benefits of trade diversion

Many researchers argue that trade diversion could actually be beneficial to developing countries. First of all, integration increases the size of the market and helps to reduce costs through economies of scale and space. Second, import substitution assists the region as a whole to spend more foreign currency for the import of capital goods and thereby contributes to the increase of investment and economic growth (Linder, 1966; Sakamoto, 1969). Furthermore, trade diversion enables consumers to buy imported goods at lower prices after the removal of tariffs thereby increasing their savings. The effect of all these, however, must be weighed against the loss of tariff revenues (Elkan, 1975, p. 59), which is particularly important for developing countries, since most of those countries rely on them as their main source of revenue in the budget.

Linder and Sakamoto introduce the term "effective trade diversion". According to them, if economic integration among developing countries leads to trade diversion it should not reduce welfare because the production substitution will be from an efficient developed country (outside the integration agreement) towards a relatively efficient developing member-state, thus creating benefits in terms of employment and income within the community as well.

Initial tariff levels

Meade assumes that the higher the initial rates of tariffs between countries entering an integration agreement are, the higher the expected benefits of integration among them will be (Meade, 1955) – because the removal of the tariff will have a greater impact in terms of both welfare and intraregional trade. This is specifically important when it comes to developing countries because the national tariffs of most of them are rather high, mainly due to their desire either to increase revenue or to protect national production.

International trade as share of GDP

Lipsey assumes that the lower the share of international trade in GDP of the member-states of an integration agreement is, the greater the expected benefits of a customs union on welfare will be (Lipsey, 1960, pp. 508-509). This is very important for developing countries because trade as a percentage of GDP in low-income countries has always been lower than in countries with a high level of income, although in recent years this imbalance is decreasing (Hosny, 2013, pp. 144-145). However, the same does not apply to countries with medium levels of income and least developed countries – their share of trade in GDP is even more significant than that in high-income countries. It can therefore be concluded that this criterion is not applicable to developing countries, because

subgroups among them may have a larger or smaller share of trade of GDP compared with high-income countries.

Share of intra-regional trade

According to Lipsey an integration agreement will bring more benefits in terms of welfare if the share of intra-regional trade is growing, while trade with the rest of the world is decreasing (Lipsey, 1960, pp.508-509). Studies show that trade between developing countries is always much weaker than that between developed countries, suggesting that the benefits of integration regarding welfare will also be smaller.

However, other researchers (Balassa, 1965; Abdel Jaber, 1971) believe that this assumption should not always be taken for granted. They list several factors that restrict trade among developing countries, arguing that if these barriers are removed, trade flows between developing countries engaged in an integration process will likely increase. These factors include: first, the low level of economic development; second, inadequate transport infrastructure and facilities; third, foreign currency control and other restrictions on imports; fourth, inadequate marketing; fifth, the lack of standardization.

Fostering regional trade

It is widely recognized that the best indicator of the success of an integration agreement is the increase of the share of intra- and inter-regional trade in the total trade flows of member-states. Although this is an important aspect of integration Inotai (Inotai, 1991, p.10) believes that it should not be seen as a means to its end. Equally important are the industrial development, the adequate infrastructure, the increase of the technological level, etc. Furthermore, the growth of regional trade may be the result of trade diversion from more efficient and competitive third countries. Therefore it can be regarded as positive only if it is combined with improving global competitiveness as a whole.

Change of the trade structure with developed countries

A major part of the imports from developed to developing countries consists of capital goods. From the dynamic analysis point of view, integration among developing countries requires substantial investments and since most of them are imported from developed countries in the form of capital goods it is likely that the volume of imports of integrating developing countries will grow. The conclusion of Mikesell is that the long-term goal of integration between developing countries should not be to reduce trade with the outside world, but rather to change in their trade structure (Mikesell, 1965, p.209).

Sakamoto (Sakamoto, 1969, p.293) believes that if the result of integration among developing countries is the trade diversion of consumer goods, this will release more foreign currency for imports of capital goods from third (developed) countries. The volume of trade with the rest of the world may not change or may even increase, but the important thing is it changes its structure.

Transport infrastructure

Transport costs reduce the potential benefits of trade integration across countries. Distance itself affects the inter-sectorial trade. This is particularly important for developing countries that enter into integration agreements for two reasons: first, as countries with similar income per capita are more dependent on inter-sectorial trade. Second, transport infrastructure and facilities in developing countries are often in poor condition or even missing, or, if existing, they are designed to promote the transport of export of primary sector products the from developing to developed countries.

Therefore, as Balassa argues, transport costs between two bordering developing countries may actually be higher than those between one of them and a remote developed country (Balassa, 1965, p.31). This must be taken into account when considering the integration of developing countries, thus according to Abdel Jaber (Abdel Jaber, 1971, p. 262) in the preparation of integration agreements between developing countries one should pay special attention to the issue of existing transport facilities and infrastructure.

Complex theories

Static and dynamic approach

According to many researchers, one must pay more attention to dynamic rather than to static effects when assessing integration processes among developing countries (Sakamoto, 1969; Abdel Jaber, 1971, etc.). Rueda-Junquera claims that traditional integration theory, which analyses the

static effects of resource allocation, implies rather small gains for developing countries and thus the motivation for participation in integration agreements should be sought in the dynamic analysis of integration and the effects that it reveals (Rueda-Junquera, 2006, p.3-4).

According to Abdel Jaber, traditional integration theory strongly relies on the neoclassical assumptions for full employment, perfect competition, constant returns of scale and perfect mobility of production factors (Abdel Jaber, 1971, p.264-265). Thus, the analysis is restricted just to the static effects and the dynamic ones are those that could bring a higher economic growth rate and utilization of underemployed economic potential.

The training ground theory

Some of the issues discussed above – how to increase international competitiveness, what specialization to aim at, whether to use protection to support industrial development in integration agreements between developing countries – are thoroughly discussed in the training ground theory. According to Inotai, this theory rests on the hypothesis that through the first stages of integration among developing countries their international competitiveness could be gradually improved if they depend on the regional market in the first stage of industrialization (Inotai, 1991, p.6-7). Free trade among member-states, combined with high tariffs for third countries' imports should give temporary protection to emerging industries as well as a market that is big enough to support the future industrial development. This process is referred to as "import substituting industrialization" (Rueda-Junquera, 2006, p.4) and gives enough time for the development of the industrial sectors of developing countries. The openness to global markets could be realized on a later stage when developing countries have reached a certain degree of efficiency and technological development. Therefore economic integration among developing countries could be seen as a transition stage towards an open economy and competition with the rest of the world after a short period of training, thus the theory is called "training ground" theory.

Although it looks sound from a theoretical perspective, there are some arguments against this theory. Inotai for instance (Inotai, 1991, p. 7) argues that first of all, developing regional markets in many cases are not big enough to enable industrial development in the terms of economies of scale; second, as a result of the training process there is rather small or even no improvement; third, there are great differences in demand preferences and tastes regarding the imports from third countries compared to those coming from interregional trade. Besides, there are no guarantees that developing countries would take on and fulfil the commitment to open up and liberalise their trade with the rest of the world at a certain point, thus protection measures could become permanent instead of temporary.

The package approach

Another complex way to implement integration among developing countries is the package approach. According to Balassa and Stoutjesdijk, a package approach specifically and explicitly aims at facilitating the integration process and enhancing the stability of an integration agreement by assuring that each member-state is responsible for the implementation of a single integration project within a common package of such projects (Balassa and Stoutjesdijk, 1975, p.53). These could include transport, communication, public goods, education, science, agriculture, mining, industry, etc. An important condition for the successful application of the package approach is that comprehensive information regarding the distribution of benefits and costs of each project on each member country should be available so that there are no member-states who feel there is inequality in the gains and expenses distribution of the integration process. Balassa and Stoutjesdijk argue that although this approach may seem plausible, problems such as financing, monitoring and controlling may arise.

Conclusion

From the above said, it is obvious that the rationale behind economic integration among developing countries could not be defined and explained just by the static and dynamic effects that determine integration between developed economies. With developing countries some factors have a stronger, while, controversially, others have a weaker impact on their willingness to participate in integration agreements.

To assess the integration benefits and costs for developing countries one must take into account their specifics such as stage of economic development, structure of the economy, production characteristics, demand preferences, trade regimes and policies, etc.

Another thing that should be noted is that while in developed countries the main rationale for economic integration comes from economic groups of stakeholders, in developing countries integration processes often initially start as a political goal and effort, which in most cases leads to unsatisfactory economic results. The complexity of the political determinants of economic integration among developing countries and their interrelations with economic rationale will be subject to further research.

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THE FINANCIAL CRISIS – EXPLAINING THE COSTS

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Abstract

There is a significant literature related to the causes of the recent financial crisis, but the costs and measures that it involved are still under discussion. The recent turmoil has proved to be more costly in terms of GDP growth and public debt. The smaller fiscal costs were due, in part, to large economies that had the necessary flexibility to intervene. The existing regulations did not pay enough attention to the economy as a whole, but rather to each financial institution, and moreover, it did not consider the interaction between financial and price stability. An assessment of the situation should take into consideration not only the direct costs such as capital infusion or emergency liquidity, but also the indirect cost like less tax revenue, higher budget spending or increased interest rates for existing debt. Each country reacted differently to this shock, but there is a universal consensus that the regulations must be changed to prevent future problems.

Keywords: financial crisis, macroprudential policies, financial costs, financial stability, price stability

JEL Classification: E52, E61, E63

Introduction

The similarities and differences between the recent financial crises and earlier crisis are largely debated in economic literature. There are those who consider that this episode was different because it was caused by an excess of liquidity worldwide that was being handled through a poorly regulated banking system (Krugman, 2009). On the other hand there are some who consider that this situation is similar to previous crisis due to the level of debt that was accumulated (Reinhart and Rogoff, 2009).

Another interesting fact that can be taken into consideration is the way the crisis started in the US and became global as well as its magnitude. Judging from this point of view, the recent crises is different because of the financial turmoil it caused, the way it caused a fall in credit and in housing prices or other assets. One important consequence of this episode was the impact it had on international trade. The most affected were small economies that registered a fall in exports of up to 30%. So even the countries that weren't directly affected by the US crisis had something to lose.

The most affected were the producers because of a lack of financing that caused a decrease in production. On the other hand, given the uncertainty in the economy and the negative perspectives, demand was reduced and so was import.

Financial literature has shown that in such situations of credit crunches, countries with more developed financial institutions had an advantage judging from the point of view of the financially vulnerable sectors.

Description of the problem

Iacovone and Zavacka (2009) concluded that the sectors that had their imports influenced were those dependent on external financing. Freund (2009) and Levchenko (2010) consider that the fall in international trade can be easily correlated with the fall in GDP, especially during financial crisis.

Some authors consider that financial imbalances are the result of the interaction between internal and external factors. The combination between a lax monetary policy, low interest rates, financial innovations and distortions in the credit market is very dangerous and to all these we add external factors such as the exchange rate or other countries' policies (Obstfeld and Rogoff, 2009). One solution for limiting these imbalances would be a tax on financial flows (Goodhart and Tsomocos, 2010). Another solution is that suggested by Gros (2010) that consists in a way to limit the capital account.

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Looking at a history of crisis, we can see that they are generally preceded by an increase in GDP and a fall in inflation. But one of the most worthy of attention variables seems to be the interest rate. The short term interest rates seem to be smaller in pre-crises periods, while money and credit seem to register increases and the current account deteriorates.

Generally a crises is associated with a recession, but it would not be right to say that all recessions are crisis related. Schularick and A.M. Taylor (2009) consider that crisis related recessions are about one third more costly than a normal recession, and that the credit rate is reduced considerably and has a slower come back. From the current account point of view, we can see a reversal of the reduction trend that is registered during a pre-crises period.

The recent financial crisis was preceded by major unbalances of the current account and there are economists who consider this as a significant factor than can contribute to a crises.

Methodology and data sources

If for previous crisis the average fall in GDP was about 20%, for the recent crises it was of 25% and judging from the public debt point of view, in the past the levels were of about 16%, while now they were at about 24%.

Due to the different types of actions taken this time, the fiscal costs were of 5% of GDP as opposed to 10% in the past. Some of the measures were also used in the past such as offering guarantees or insuring appropriate levels of liquidity, but there recapitalizations were implemented much faster this time.

Although these actions contributed to a reduction in the impact of the crises, they also increased the level of public debt.

Laeven defines a banking crisis as a systemic one if the banks are confronted with major losses at a system level or bank-run or if the authorities implement complex measures in order to respond to the situation. Among these measures we can find: offering liquidity to the market, the costs that come with a reconstruction of the banking system, bank nationalization, massive purchases of assets, freezing deposits or non-banking days.

Table 1

Systemic Crisis, 2007-2009

Country	Liquidity injections	Reconstruction costs	Assets purchse	Offering guarantees	Nationalizations
Systemic cases					
Austria	X			X	X
Belgium	X	X		X	X
Denmark	X			X	X
Germany	X			X	X
Iceland	X	X		X	X
Ireland	X	X		X	X
Latvia	X			X	X
Luxemburg	X	X		X	X
Mongolia	X	X		X	X
Holland	X	X		X	X
Ukraine	X	X			X
UK	X	X	X	X	X
USA	X	X	X	X	X
Other cases					
France	X			X	
Greece	X			X	
Hungary	X			X	
Kazakhstan	X	X			
Portugal	X			X	
Russia	X			X	
Slovenia	X			X	
Spain	X			X	
Sweden	X			X	
Switzerland	X		X		

Source: Laeven (2012)

Crisis management measures have as a starting point isolating the pressures on liquidity and supplying liquidity. Then there is a phase of bank resolution and bank restructuring as well as stimulating economic growth.

In the case of the recent financial crises, liquidity was offered to the system but there no non-banking days set and a freeze on deposits was implemented only in Latvia for Parex Bank. The resolution measures were similar to those used in the past but the speed at which they were implemented was much bigger.

One particular aspect of the recent crisis is that it affected, generally, big advanced economies with strong connections of the financial system at an international level. It is specifically these connections that contributed to a fast propagation of the crises worldwide. This meant that the fall of an important financial institution in such a country could lead to the collapse of other financially systemic important institutions. All these required an strong and fast response from the authorities.

Considering that the country of origin for the financial crises was the US, the most affected countries were those that had strong financial connections to the US. According to the BIS these countries were: Switzerland, Holland, the UK, Canada, Belgium, France, Ireland, Germany, Japan, Sweden, Spain, etc.

Table 2

The cost of banking crisis

	Direct fiscal costs	Public debt increase	GDP decrease
Average (%GDP)			
Past crisis			
Advanced economies	3,7	36,2	32,9
Emerging economies	11,5	12,7	29,4
All	10,0	16,3	19,5
The 2007-2009 crises			
Advanced economies	5,9	25,1	24,8
Emerging economies	4,8	23,9	4,7
All	4,9	23,9	24,5

Source: Laeven and Valenica (2012)

The recent crises has proven more costly from the decrease in GDP point of view and the increase in debt, but less expensive from a fiscal point of view. The small fiscal costs for advanced economies can be considered a consequence of a higher flexibility in these countries because they can intervene easier by using fiscal and monetary policies.

Table 3

Financial crisis costs (% of GDP)

Argentina (1980-1982)	55
Belgium (2008-2011)	6
Chile (1891-1985)	43
China (1998)	18
Germany (2008-2011)	2
Greece (2008-2011)	27
Iceland (2008-2011)	44
Indonesia (1997-2001)	57
Irlend (2008-2011)	41
Japan (1997-2001)	14
Koreea (1997-1998)	31
Latvia (2008-2011)	6
Mexic (1994-1996)	19
Holland (2008-2011)	13
Spain (2008-2011)	4
Thailand (1997-2000)	44
Turkey (2000-2001)	32
The UK (2007-2011)	9
USA (2007-2011)	5

Source: Laeven and Valenica (2012)

The fiscal costs are just part of the problem because a financial crises is also characterized by a period of recession, which means an increase in public debt (Reinhart and Rogoff, 2009). A higher level of debt means a reduced capacity of fiscal policy to act in an expansionary way, and the problem should be solved by reducing the policy rate by the central bank. This can help the banking system, but can have negative effects on the financial system.

High fiscal costs for helping the financial system have been associated in many cases with a high level of inflation and sovereign debt issues.

If the fiscal resolution policies are not built in order to reduce the contributors' exposure and the moral hazard, and if the fiscal deficits get even bigger, the credibility in the governments' ability to insure the financial system decreases.

An interesting situation is that in Japan where financial instability manifested before 2007 and the financial crises only came to exacerbate the existing issues. In 2011, the IMF estimated the public debt for Japan at 230% of GDP, with perspective of worsening. This is the result of a period when many insolvent entities were sustained financially and the small interest rates encouraged the banks to invest in government bonds and not to look for new clients. Moreover, the fiscal policy was inefficient and deflation was anticipated in the market. In this situation the solution that the authorities suggested, inducing positive inflation expectations, may prove hard to implement due to the fragile balance that has to be maintained.

The real impact of crisis on production has been estimated by Claessens, Kose and Terrones (2011). They showed that recessions due to a credit crunch or real estate problems seem to be more costly than those due to a fall in asset prices. By using the difference between the estimated output before the crises and the effective output during the crises, Laeven and Valencia (2012) have shown that the total loses in the first four years of the crises were of about 23% of GDP.

Results obtained

At a global level the recent crises meant a decrease of GDP per capita of 2% in 2009, as opposed to the crises in 1982 and 1991 when the decrease was of 0.8% and 0.2%.

Financial crisis are associated with major reductions in many financial variables. According to Claessens, Kose and Torrones (2011) crisis can determine reductions in credit of up to 7%, in real estate prices of 12%, in asset prices of 15%.

The fiscal costs of a financial crises can be split in two categories:

-Direct costs resulted from credit inflows, government debt or emergency liquidity

-Indirect costs from reduced income from taxes or higher expenditure due to the recession, as well as from an increase in interest rates for existing debt.

In countries such as the US, the UK or Ireland where before 2007 there was a real estate boom, but now the banks had to deal with a decrease in asset prices.

Loses in the financial system don't necessarily mean an intervention from the public sector because banks can support loses based on previous profits. But in special circumstances such as a systemic crises, profit falls rapidly, capital is eroded and the need for fiscal support becomes obvious. So, in order to reduce panic in the system, governments had to issue guarantees for the system. Just the initial costs were of about 20-30% of GDP, but there were economies such as the UK where the intervention was twice as big in order to support Royal Bank of Scotland and Loyds Banking Group. In order to avoid bank-runs in many countries they had to increase the level of guarantees for deposits.

According to the IMF, in G20 countries the direct support was of about 3,5% of GDP.

In the US only the initial intervention was over 4% of GDP but some banks have already started refunding the sums. The initial estimates regarding the TARP program were of about 0.8% of GDP and to that we should add the AIG aid and that offered to Fannie Mae and Freddie Mac that cumulated about 2% of GDP.

In Germany measures were taken both at federal level and at a country level. The federal fund for market stability (SoFFin) managed to make a profit from the sums offered as support, considering

that there were no bond issuers that went into default. At a country level 18 bn euro were offered for Landesbanks BayernlB, LBBW and HSH Nordbank.

In France most banks reimbursed most of the 13,3 bn euro plus 1 bn euro in interest in financial support and losses are not an issue.

In the UK the state owns 41% of Lloyds, 84% of RBS and 100% of Northern Rock and has received 681 mil. GBP from the Asset Protection Scheme and the recapitalization of the first two banks. Considering the increases in asset value it is likely for the authorities to make a profit. The IMF estimates fiscal costs of 5,4% of GDP, more than in many developed countries.

The direct fiscal costs could prove to be smaller than initially estimated but the secondary effects can't be ignored. One of the most important being a significant reduction of economic activity and an increase in public debt.

In advanced economies the budget deficit went from 1.2% of GDP in 2007, to 8.9% in 2009 and according to the IMF the perspectives remained negative.

The public debt in G20 countries was anticipated to grow from 78% of GDP in 2007 to 118% in 2014 and this had negative effect is due to higher interest rates that caused the crowding out effect.

One important part in reducing the probability of default for banks and for lowering the cost of debt is played by the capital requirements. The capital requirements should be increased in order to sustain economic development and to reduce the cost of a possible bail-out.

By implementing the Basel III agreement, especially from the liquidity point of view, short term financing is discouraged which could lead to radical changes in the structure of bank financing.

CCB (countercyclical capital buffers) is one on the tools Basel III and the UE Directive regarding capital requirements (CRD IV) introduced. This was conceived as a response measure to events generated by a financial crises and its main purpose is to make the banking system stronger by insuring enough capital. The banks should increase capital in credit boom periods and could use these resources in case of financial difficulty. The methodology for implementing this tool has starts from the credit to GDP ratio.

The level of credit and domestic credit, domestic housing prices or banking profitability could be indicators that could signal financial problems.

History has shown that many financial crisis had as a main feature a lack of correlation in banks balance sheets in terms of currency and maturity or high exposure for off-balance sheet items (Laeven and Valencia 2008, Reinhart and Rogoff, 2009). In many cases these institutions were of systemic importance and lead to a propagation of the shock in other countries

Financial crisis can be classified in banking crisis, currency crisis or sovereign debt crisis. In the period from 1970 to 2011, the currency crisis seem to be the most frequent (218), then come banking crisis (147) and sovereign debt crisis (66).

In the case of banking crisis an important role is played by financing and the quality of assets (Borio and Lowe, 2002). In case of such a crisis, a fast fall in assets prices lead to an increase in nonperforming loans.

An important role in these situations is played by the fact that banks depend too much on a certain type of financing and diversification and the use of complex financial instruments only exacerbated this problem.

Starting with 2010 the pressure about sovereign debt and its effect on markets was more and more important in the euro area and this was due to the fact that many banks had big volumes of government bonds and as a consequence high exposures in case of a fall in their value.

But government bonds are also used as a guarantee for transactions and this could mean that a fall in a country's rating could affect the banks' access to financing and the costs.

According to The Global Financial Stability Report 2010, when the crisis started important banks had major problems in terms of currency and maturity mismatches and this lead to a high vulnerability. Many of them depended on volatile short term financing. In 2007 due to increased problems in the US liquidity quickly deteriorated and contagion manifested itself in the case of international banks and lead to a sharp unprecedented fall in spreads.

Due to this situation many banks were forced to rethink their financing models in order to find more stable financing sources. But when doing this they must take into consideration the national characteristics. For example, in the UE financial derivatives are less used.

Banks also started using deposits in order to insure a stable financing sources and because they were guaranteed by the authorities. But even so in Spain from 2010 to 2012 deposits went down by 159 bn euro, in Greece by 80 bn and in Ireland by 21 bn, on the other hand in Portugal they increased by 4 bn. it is very important that after 2012, the volume of deposits started to grow in all countries.

In Europe the problems about public debt sustainability started before the banks had a chance to exclude the troublesome assets from their balance sheets and this made them vulnerable to the sovereign debt crises. Even the most important institutions were confronted with problems with financing and higher costs. And so the sovereign debt crises turned into a banking crises.

Considering the increasing problems in financing the demand for liquidity from the central banks increased. That is why the ECB decided to offer a large variety of operations in the market, two of which were long term financing operations (LTRO) that amounted to 1000 bn euro. A large part of the liquidity was absorbed by banks in countries under EU-IMF agreement.

Besides finding more stable financing sources, banks started to improve their capital. In the pre-crises period banks maintained their capital to asset ratio relatively stable, but after 2008 it started to increase and the annual growth of assets became negative.

Conclusions

The recent financial crises came to prove the relationship between financial crises and bank financing structure. In case of financial turmoil even the well rated banks can have difficulty accessing long and short term financing. This could determine them to use alternative financing methods or to intervene in the structure of their balance sheet and this, in turn could lead to a limiting of the banks' ability to finance the real sector.

This is an important lesson for the banking system because their balance sheet should depend more on stable financing and should be balanced from a currency and maturity point of view.

The complexity of the new financial system means that despite the additional regulations problems are becoming more complex and dynamic. The lack of fiscal space will determine financial instability to develop further and will cause price instability and increases in debt as well as financial market distortions. Moreover the instability of a country should not be regarded individually but globally by looking at its connections with other economies.

Globalization, deregulation or technological and financial innovations have allowed banking activity to develop beyond the borders of a certain country and so the level of international banking assets has reached impressive levels. This brings into discussion importance of a banks' size in the case of a financial crises.

The recent crisis has proven the importance of take into consideration financial stability when configuring monetary and financial policies.

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STOCK EXCHANGES DEVELOPMENT: THE CASE OF BULGARIA AND ROMANIA

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Abstract

The main objective of the research paper is to analyze the development of the stock markets of Bulgaria and Romania. The research will aim at identifying the factors that influence the stock market development process in the two EC member-states following seven years of full EU membership, to outline the existing barriers at micro- and macro levels and draw conclusions. The Bulgarian capital market remains financially underdeveloped as compared to the Romanian one. The alternative for the stock market development in Bulgaria is to follow an evolutionary path similar to the Romanian stock market. The research methodology will include comparative and economic analysis on the basis of European financial integration theory and drawing of conclusions regarding stock market development tendencies.

Keywords: stock markets development, European financial integration

JEL classification: G19, G23, G29

1. Introduction

The integration processes on the capital markets of EU offer advantages as increased profitability and effectiveness, spreading and diversification of the risks and decreasing the level of information asymmetries among the parties. This process requires gradual movement to uniform and integrated financial infrastructures and strict application of the requirements of EU legislation (especially in the field of competition and tax treatment), thus leading to increased harmonization in the financial markets practices and instruments.

The Bulgarian capital market has made significant progress in the implementation of EU norms and requirements in the field of financial integration and has formulated a clear strategy for further EU integration through privatization of the Bulgarian Stock Exchange and the Central Securities Depositary. Thus, it is expected to achieve the set goals of increasing the effectiveness of the Bulgarian capital market and the supporting infrastructure. Yet this process is currently facing a retarded pace due to the political situation in the country and the various barriers that need to be overcome at institutional and microeconomic level.

Regarding the Romanian capital market it should be outlined that it is characterized with advanced structure than the Bulgarian market, with separately functioning derivative market as well, offering diversified base of traded financial instruments. The adopted strategy for the development of the capital markets in Romania has clearly articulated the way ahead for increasing the attractiveness of these markets for investors and raising the visibility of these capital markets at regional and world level.

2. Description of the Problem, Methodology and Data Sources

The research paper will aim at analyzing the current state of development of the stock markets of Bulgaria and Romania, to outline the main problems at micro and institutional level and the strategic priorities of the two markets for deepening their EU integration. The potential model for future development of the two stock markets points toward boosting the process of regional cooperation. The research methodology will include comparative and economic analyses of quantitative and qualitative aspects of the development of the two stock markets; statistical regression analysis to test for integration between the two markets as well as analysis of main factors influencing their development. Major factors for the successful development of stock markets generally relate to economic stability, predictability and growth; innovative potential; high degree of investors' protection; preferential tax treatment and favorable social environment requiring low level of corruption. The data sources for analysis of the issues include publications of the two stock exchanges, Eurostat data and information from the database of the Black Sea Trade

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and Development bank, as well as other international institutions as World Economic Forum, the International Monetary Fund, the World Bank, the European Central Bank etc.

3. Results obtained

3.1. The Bulgarian Stock Market Development

3.1.1 Current State of Development of the Bulgarian Capital Market

According to a report by the World Bank (The World Bank, 2011) the Bulgarian legislation has achieved high degree of harmonization with the EU regulations and directives in the field of capital markets. In 2014 the process for implementation of the new EU legal framework is completed (regarding short sales, OTC derivatives, central counterparties and registers of transactions, alternative trade systems etc.). This process is an important priority for the Bulgarian regulatory body The Financial Supervision Commission and for the market participants in the country.

By 2013 the Bulgarian capital market remains limited in size and insufficiently well developed as compared to the Eurozone countries and Central and Eastern European member-states. A report by the IMF (IMF Working Paper, WP 2012/131) outlines the necessity to continue development of the capital market in Bulgaria in view of accelerating economic growth and productivity through further structural reforms. It should also be emphasized that while most of the CEE countries (especially Hungary and the Czech Republic) are undergoing an intensified convergence process toward the EU economic structures, the expectations for Bulgaria are divergences from the average EU indicators to remain significantly pointed (Economic Research Institute at BAS, 2012).

The most recent report of the World Economic Forum (WEF, 2013-2014) places Bulgaria at 57th position out of 148 countries in the world according to global competitiveness index (being followed by Hungary – 63, Slovenia – 67, Croatia – 75 and Romania – 76). On the other hand, according to financial development index Bulgaria ranks 73th, after Romania (72 position), the last position in CEE being occupied by Slovenia (134 position out of 148 countries). The main problematic factors in front of competitiveness and financial development for Bulgaria remain the high corruption levels, the insufficient effectiveness of the institutional framework and the constrained access to financing. The National Programme for Development of the Republic of Bulgaria encourages overcoming these weaknesses by further optimization of the institutional capacities, active implementation of EU financial instruments for startup and growth-oriented SMEs and application of diverse policies to boost competitiveness in accordance with the principles for sustainable development. Main priority for Bulgaria will be maintenance of the macroeconomic stability and high rate of growth in the medium-term (Kalaidjieva Zh., 2012).

In the wake of the global financial crisis by 2013 the market capitalization of the the Bulgarian Stock Exchange – Sofia AD (BulEx) as a share of GDP continued its downward development and reached 12.75 %, while for 2012 it stood at 12.67% (Financial Supervision Commission, 2013) yet it remains at considerably low level as compared to the Eurozone average (for 2013 standing at 58.1% - ECB Convergence Report, 2014). In comparison, the stock market capitalization of Romania in 2013 stood even lower at 11 % of GDP. The low liquidity is the chief shortcoming of the capital market in Bulgaria. It is explained with the low volume of free float as well as with the outflow of foreign investors from the Bulgarian capital market in the aftermath of the developments of the global financial and economic crisis.

In 2013 continued to predominate secondary public placements. The main reasons for the prevailing secondary public placements continue to be the high costs relating to fees and commissions, the requirements for disclosure of information under the Law on Markets in Financial Instruments and the Law on Public Offering of Securities, as well as the lengthy procedures for approval of prospectuses. In 2012 BulEx amended its Rulebook and introduced new segmentation of the markets, operated by it. On the one side, by 2013 **BSE market** includes *Premium shares segment* (7 issues), *Standard shares segment* (90 issues), *Shares of Public Companies with special investment purposes segment* (14 issues), *Collective investments schemes segment* (43 issues), *Compensation instruments segment* (3 issues), *Bonds segment* (60 issues) and *Structured products segment* (2 issues). On the other side, **BaSE market** is designated for trades in low liquidity shares which do not meet the set requirements regarding liquidity and corporate management quality. This market is composed of two segments: *Shares segment* (226 issues) and *Shares of Public Companies with special investment purposes segment* (50 issues).

By 2013 the turnover on the regulated market of BulEx registered a rise by over 43 % as compared to the same period of 2012 due to the rise of turnover with traded shares and shares in collective

investment schemes. The two main stock exchange indices SOFIX and BGTR30 marked a further push-up by 43 % and by 27.98 %, respectively as compared to 2012. As from 2012 the BulEx introduced lengthened trade sessions schedule to achieve further synchronization of trades' terms to that of European capital markets.

The implemented amendments in the National Corporate Governance Code (BulEx, 2012) are intended to reach harmonized corporate practice to that in the other EU countries through application of the "comply or explain" principle. The principle requires in case of non-observance of some of the recommendations contained in the Code, the respective public entity to outline the reasons thereof. The good corporate governance guarantees strict abidance by the requirements for transparency, public disclosure and business ethics as well as safeguarding equality of all shareholders.

3.1.2. Main barriers at micro and institutional level

Regardless of the high degree of harmonization of the legislative framework and the market practices to EU levels the capital market in Bulgaria still faces a number of barriers hindering its effective functioning after seven years of full EU membership. More specifically, **at a microlevel** can be outlined some of the following limitations: low quality of publicly listed companies taking the form in low levels of free float, low capitalization; the companies which achieve higher capitalization levels are leading players in their respective industries and sectors and are often targets of interest for large national or foreign institutional investors; low liquidity which leads to higher costs for execution of deals with predetermined volumes and rising price volatilities.

On the other hand, **at institutional level** continue to exist limitations as: lack of established adequate clearing infrastructure, which incapacitates the development of a derivative market in Bulgaria; the deliberately retarded process for integration of the central securities depositary to the European settlement infrastructures; the appreciable differences of the Bulgarian capital market as regards the developed European markets, the lack of political will for reforms of the capital market of Bulgaria etc.

The successful removal of these barriers is contingent on the leading role of market stimuli and forces through an adequate evaluation of expected costs and benefits. The institutional structures are called upon to eliminate the still remaining legal, tax, regulatory and other limitations in front of the capital market and to execute an ongoing monitoring over the market and its participants in view of preserving financial stability and prevention of systemic risks.

3.2. The Romanian Stock Market Development

3.2.1. Current State of Development of the Romanian Capital Market

In regional aspect Bucharest Stock Exchange (BSE) is an average in size stock exchange, in market capitalization being followed in Central and Eastern Europe C(EE) by Ljubljana Stock Exchange (EUR 5,1 billion) and the Bulgarian Stock Exchange (EUR 5 billion). By the same indictor ahead of BSE are Budapest (EUR 14,3 billion), Prague (EUR 21,9 billion) and Vienna (EUR 85 billion) stock exchanges (FESE, 2013). The highest market capitalization in the region for 2013 marked the Warsaw stock exchange (EUR 149 billion), while at EU level the leadership position is held by Deutsche Boerse Group with market capitalization of EUR 11,7 trillion.

In 2013 the trading turnover on BSE reached EUR 171 million, the highest being the turnover volume on regulated market (86%), followed by that on RASDAQ (5%), the bonds markets (4.5%) and the turnover on the structured products market (3.8%). As from 2011 the BSE introduced short sales transactions and increased further the number of traded derivative financial instruments aimed at adoption of hedging or speculative strategies. More specifically the issues of index-based and turbo certificates contribute to boosting the attractiveness of the structured products market.

The BSE organizes and supports the following **markets (**Bucharest Stock Exchange, 2013)**:**

- regulated spot market – encompasses trades in equities, debt securities, corporate and municipal bonds, government bonds, units in collective investment schemes and structured products;

- regulated derivatives market – offers trades in futures contracts based on equities, indices, commodities and currencies;

- alternative trade system – provides trades in foreign equities listed on other markets and securities issued by Romanian companies which do not meet the criteria for being listed on the regulated market;

- RASDAQ – offers trades in equities and rights in Romanian companies, issued under privatization programmes.

Besides the main regulated market, operated by BSE since 1997 in Romania has been functioning a derivative market SIBEX (Sibiu Stock Exchange), organized initially as a commodity exchange. The derivatives market offers trades in futures, options, binary options and contracts for differences. The futures segment includes over 15 products as futures contracts over petrol, DJIA index, currencies contracts based on EUR/ROM and on gold.

As from 2011 BSE has been added to Dow Jones Global Exchanges Index which allows juxtaposing developments in the value of shares at BSE against other regulated equities markets. Important aspects of the international cooperation of BSE are the roadshows undertaken by it to London, the USA, Canada, Austria, Egypt, Czech Republic etc. It has signed memoranda for cooperation with the stock exchanges of Bulgaria, Aman, Moldova, Vienna, Thessalonniki, Athens, Tokio, London and the BSE has been a member of the Federation of the Euro-asian Stock Exchanges since 2009. More specifically, the memorandum for cooperation with the London Stock Exchange Group involves incentives for the development of the cash market in Romania and wrapping up regular investment fora in order to increase the level of information of English investors regarding investment opportunities provided by BSE. It provides for regular seminars, tuition courses etc. for the members of the BSE as well as for access to the markets operated by the London Stock Exchange Group. The memorandum outlines the potential for development of a particular group of indices based on FTSE and prospective cooperation also in the field of clearing and settlement with the central securities depository of Romania and CREST.

The central securities depository of Romania provides settlement cycle T+3 and as from 2010 it has established operational link with US central depositories while starting from 2012 (under signed cooperation agreement with the Bulgarian central securities depository) it has been in process for the development of direct access link with Bulgaria. This link will allow possibilities for dual listings and cross-listings of equities on the two markets.

In 2012 BSE introduced the first Romanian exchange traded fund for collective investments in transferable securities on the regulated market and the fund tracks the development of the leading stock exchange index BET (Bucharest Stock Exchange, 2013). As from the middle of 2014 the stock exchange of Bucharest expects to implement the calculation of two new indices. On the one hand, BET Total Return Index will take into account the dividend payments of companies by encouraging issuers to follow a stable and foreseeable dividend policy and increasing the attractiveness of the local capital market. On the other hand, BET Plus Index will track the performance of issuer companies which from the point of view of their liquidity have lower value than those companies, included in the main stock index BET, and an important requirement will be these issuers to maintain minimum freefloat of at least EUR 1 million (Bucharest Stock Exchange, 2013).

3.2.2. Main barriers and micro and institutional levels

Irrespective of the high degree of harmonization in the regulatory and legal framework with EU requirements after seven years of membership of Romania in EU still exist various barriers in front of the effective integration of the Romanian capital market which basically relate to market practices and tax treatment. The institutional investors have an obligation to submit significant volume of documentation in opening of account for trade in securities. This leads to additional transaction costs and impacts negatively the size and the market liquidity (Bucharest Stock Exchange, 2013).

Apart from this, tax procedures in appointment of tax agent, tax registration and disclosure are very burdensome, irrespective of the fact that Romania has concluded and maintains active double taxation agreements with over 80 countries. The tax procedures are complicated and give rise to problematic issues connected with their interpretation. On the other side, there exist linguistic problems and complexities in the communication between foreign investors and the local tax authorities (Diaconu I., Tudor M., 2014).

The Romanian capital market remains one of the most expensive in CEE from the point of view of fees and commissions, imposed by the stock exchange and the Financial Supervision Commission. This leads to direct tentative effect on the establishment of market prices. The existence of such costs further encumbers the process of restructuring and diversification of investors' securities portfolios.

3.3. Factors Influencing the Development of the Romanian and the Bulgarian Capital Markets

According to a research (IESE Business School, 2010) the six most important factors which determine the relative attractiveness of the capital market of a given country for investors (domestic and foreign) relate to the following:

1) ***Economic activity*** – this includes level of economic growth and GDP, inflation, net flows of foreign direct invetsments etc.

Over the period may 2013 – April 2014, 12-month average rate of HICP inflation in Romania was 2.1 % (above the reference value of 1.7 % for the criterion on price stability). Real GDP grew by 3.5% on average in 2013 after a very moderate 0.6 % in 2012. Net flows of FDI progressively fell after the start of the global financial and economic crisis and by 2012 stood at USD 2,071 million according to data from the Black Sea Trade and Development Bank. The government budget balance showed a deficit of 2.3 % of GDP, below the 3 % reference value. The general government gross debt–to-GDP ratio was 38.4%.Long-term interest rates were 5.3 % on average for the above-stated period.

In Bulgaria The Currency Regime introduced in 1997 guarantees the preservation of financial stability. The reported budget deficit for 2013 amounted to 1.5 % of GDP and remains sufficiently below the EU reference value of 3 %.The ratio gross domestic debt to GDP by 2013 stood at 18.9 %, sufficiently lower than the EU reference value of 60 %. The long-term interest rate in 2013 stood at 3.5 % staying sufficiently below the EU reference value of 6.2 % according to the criterion for interest rate convergence. The same applies for the level of inflation, which kept falling down from 3.4 % in 2011 to 0.4 % in 2013. Real GDP groth rate overcame the negative tendency of -5.5. % in 2009 and gradually started rising from 0.6 % in 2012 to 0.9 % 2013.

2) ***Entrepreneurial culture*** – capacity of the country for innovations, R&D costs, etc.

R&D expenditures in Bulgaria for 2011 were 0.60% of GDP and according to this indicator Bulgaria lags behind the average EC-28 value of 2 % for 2010, and according to the National Framework Programme Europe 2020 this indicator should reach between 1.4 % and 2 %. Romania plans to increase R&D expenditures to 2 % of GDP by various stimuli for boosting private investments in science and research and along the lines of the utilization of EU funds. According to EU Innovation Union Scorboard (2011) Bulgaria and Romaina are in the goup of “modest” innovators. The share of innovative enterprises in the total number of SMEs in Bulgaria is 27 % and is the lowest among EU-28 member-states, the highest share of innovative SMEs in EU-28 being in Germany (79.3%).

3) ***Depth of the capital market*** – relates to the existence of well-developed capital market measured by the market capitalization or the number of listed public companies. The predominance of bank-based financing is a sign of weakly developed capital market, which restricts the entrepreneurial activities due to the conservative approach of banks to financing.

The market capitalization of the Bulgarian stock market shows progressive decline in recent years from a peak of 48.2 % of GDP in 2007 to just 12.7 % at the end of 2013. By 2013 the number of listed companies on regulated market was 24. Bulgaria’s financial sector is bank-based with credit to non-governmnent residents increasing very rapidly between 2004 and 2009 and amounting to 70.8 % of GDP in 2013.

In Romania stock market capitalization stood at 11.6 % of GDP in 2013, compared with 17%-18% that Romania generated during the period 2005 – 2007 in view of the financial expansion prior to the global financial and economic crisis. By 2013 the number of listed companies on regulated market stood at 84. Bank financing as measured by credit to non-governmnent residents being 34.8 % of GDP in 2013 points to a more balanced structure between bank-based and stock market generated financing.

4) ***Protection of investors and corporate governance*** – the presence of stable legal framework which safeguards the rights of investors and high corporate culture. The stock markets of both Romania and Bulgaria have established well-based market practices for protection of investors through adopted and maintained Corprate Governance codes, which is an important factor for boosting the competitiveness of these capital markets.

5) ***Taxation*** – the low tax rates of corporate tax and more tax preferences are also significant factor for encouraging the investments on the capital market.

In Bulgaria the uniform tax rate of 10 % (equally applied to personal income tax and to corporate income tax) is lower compared to other EU countries.The capital gains tax is 10 % accrued to non-resident entities and there is 5 % withholding tax on distribution of dividends to residents and non-residents (excluding for EU/EEA entities). In Romania there is uniform capital gains and dividend witholding tax of 16 %.

6) ***Social envirnoment*** – level of corruption and size of unregulated (grey) economy etc.

According to the Global Perception Index, which measures the perceived level of public sector corruption on a scale of 0-100, where 0 means a country is perceived as highly corrupt and 100 means a country is perceived as highly clean, Romania occupies 69th position (score 43), followed by Bulgaria on 77th position (score 41). Ahead of them in CEE are Czech Republic (score 48), Hungary (score of 54), Slovenia (score of 57) and Poland (score of 60).

In a research (The Shadow Economy in Europe, 2013) of Visa Europe among all 31 countries Bulgaria has reported the highest share of grey economy of 31 % of GDP, while Romania has achieved 28 % share (similar to that of Slovenia,Turkey and Lithuania). The lowest share of grey economy in CEE maintain Slovakia (15 %) and the Czech Republic (16%), whereas the European average share is 18.2%.

According to conducted correlation and regression analysis (Stefanova J., 2014) of the stock exchange and economic indicators of the capital markets of Bulgaria and Romania for the period 2007 – 2013 regarding the existence of integrational dependencies on the two markets (see Table 1 below), it has been established as follows:

1. There exists significant degree of correlation between the Bulgarian stock exchange index SOFIX and the Romanian index BET (correlation coefficent of 0,69) and up to 48 % of the changes in the SOFIX can be explained by variations in the Romanian leading index.

2. During the seven-years' period of membership in EU, the market capitalization of the Bulgarian stock market progressively falls (from EUR 15 billion in 2007 to around EUR 5 billion in 2013) and by 2013 represents around 10 % of the market capitalization of the Bucharest stock exchange (for 2013 it stood at EUR 69 billion).

3. The long-term interest rates of 10-years' government bonds of Romanina and Bulgaria also show strong correlation links (correlation coefficient of 0,94) and 1 % change in the Romanian long-term interest rates is associated with less than 1 % variation in the Bulgarian long-term interest rates, respectively.

4. Foreign direct investments in Bulgaria and Romania follow falling trend as from 2007 onwards and by 2012 in Bulgaria they stood at USD 2 billion, while in Romania – USD 2,1 billion according to data from the Black Sea Trade and Development Bank.

Table 1

Main Economic Variables

Foreign Direct Investments			Long-term interest rates (yield on 10 years' government bonds)		Real GDP growth		Bucharest Stock Exchange	Bulgarian Stock Exchange
Year	Romania (USD million)	Bulgaria (USD million)	Romania (%)	Bulgaria (%)	Romania (%)	Bulgaria (%)	BET Index	SOFIX Index
2007	10.290	13.875	7,13	4,54	6,30	6,45	9,825	1,767
2008	13.849	10.296	7,70	5,38	7,30	6,19	2,901	3,580
2009	4.926	3.896	9,69	7,22	-7,10	-5,50	4,690	4,290
2010	3.204	1.866	7,34	6,01	-1,10	0,40	5,268	3,620
2011	2.557	2.096	7,29	5,36	2,20	1,80	4,336	3,220
2012	2.071	2.046	6,68	4,50	0,70	0,80	5,149	3,450

Source: the author according to data from the Black Sea Trade and Development Bank

From the above-stated it can be concluded, that the stock markets of Bulgaria and Romania are strongly correlated, yet the Bulgarian capital market remains insignificant in terms of market capitalization and volume of traded financial instruments. According to a research (Armeanu D., Burca A.M, 2013) for the period 2007 – 2012 is confirmed relatively strong correlation between the Romanian index BET and EUROSTOXX, while another study (Minjina D., 2010) for the period 2004 – 2009 also established increasing correlation between BET and the Polish WIG (correlation coefficient 0,59 for 2009), the Czech index PX (correlation coefficient 0,60 for 2009) and the Austrian index ATX (correlation coefficient 0,54 for 2009), which can be explained by the rising presence of foreign investors on the Romanian stock market.

The status of a public entity of BulEx is part of the strategy of the stock exchange for its development, raising the transparency in its operation and last but not least for further provision of market liquidity. This process is in accord with the tendencies in Western Europe for transformation of stock exchanges in public shareholding entities mainly along the lines of their privatizations. The increased state share from 44 % to 50 % plus one share aims at blocking attempts from hostile takeover of the stock exchange. The public flotation of the shares of BulEx is driven by an incentive for raising transparency and enhancing liquidity of its own shares. The prospective strategic alliance of BulEx with foreign-owned stock exchange can be expected to lead to improved public wellbeing and raised consumer surplus in the long run in accordance with public well-being theory.

The adopted conception for integration of BulEx and the central securities depositary of Bulgaria for further integration through initiated privatization procedure in 2012 aims to increase the effectiveness of the Bulgarian capital market through «...its consolidation with a world or European leading exchange operator or exchange alliance» (BulEx, 2012).

On the other hand, the strategy for the development of the Romanian capital market (Bucharest Stock Exchange, 2014) identifies seven systemic barriers for the creation of modern capital markets in Romania among which are difficult access to the market, complicated requirements for fiscal compliance of investors, unclear taxation issues relating to capital markets transactions etc. The successful removal of these barriers would increase investors' confidence and raise their interest in the Romanian stock market, thus leading to greater visibility of the market on regional and world level and to potential reclassification of this market by Morgan Stanley Capital International from Forntier to Emerging Market.

4. Conclusions

The Bulgarian and Romanian capital markets remain limited in size and insufficiently developed as compared to Central and Eastern European capital markets. Main problematic factors in front of their competitiveness and financial development remain the high level of corruption, insufficient effectiveness of the institutional structures and the restrained access to financing. Irrespective of the high degree of harmonization of the legal framework to that of the EU, seven years following membership in EU there continue to exist numerous obstacles in front of the effective functioning of these capital market at micro- and institutional level.

The potential model for the future development of the Bulgarian and the Romanian capital markets passes along an evolutionary organic overcoming of their intrinsic limitations through various forms of regional cooperation and integration. Main prerequisites for the success of such an integration model is the high degree of legal harmonization with EU requirements and the potential for implementation of unified market practices, establishment of links between the exchanges' trade systems, introduction of common quotation rules, clearing and settlement processes.

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CORPORATE AND PERSONAL FINANCE

KNOWLEDGE, ECONOMIC MODELS AND MARKET VALUE OF COMPANIES

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Abstract:

The direction of our research aims in essence, to propose and build some modern systems (based on decision expert systems decision, neural networks, etc.) to estimate the risk of bankruptcy of enterprises, considering the economic models already known. Made simpler, we propose that certain non-quantifiable components of the value of the business of an organization (the knowledge held, the amount of management applied, etc) to be captured and / or included in the structure of economic models aimed at predicting the risk of bankruptcy of companies.

The basic idea of the research focuses on the synthetic analysis regarding the risk of bankruptcy of firms in terms of current realities that characterize the competitive environment of businesses at a global level. Today, the knowledge society and / or the knowledge economy has become a kind of vector of reporting for both business organizations and policy makers, opinion leaders and even every citizen. The so-called intangible assets of a company determine in an increasingly measure the market value of the firm but instead they are not reflected or very little reflected in the accounts entity. Acquisition and processing of new knowledge, while organizational learning have now become major directions of action for all business organizations. New knowledge are transformed by trained / qualified employees in inventions and innovations of various types that subsequently value in all markets. Otherwise, knowledge has become today an essential resource for companies, but including this asset in the structure of accounting indicators reflects major difficulties under methodological report.

Key words: knowledge classes, bankruptcy risk, knowledge, innovation

JEL classification: D83, M15, M29

Introduction

The conception of the Japanese teacher Nonaka regarding the classification of knowledge (in explicit and tacit) generated over the past three decades, a small "revolution" in the management of business organizations (Nonaka, 1998); although the proposed classification is one extremely general since it splits *knowledge* into only two classes of knowledge, the impact of this approach has been and remains major in management and related fields (creative thinking, stimulating innovation, scientific research, etc.). Explicit and tacit knowledge classes, respectively the classification proposed by Nonaka, does not present a notable interest from the perspective of systems engineering; however, this line of research could lead to new elements in the construction of expert systems on economic issues. For the reason given, we think it is useful to return to the typology of explicit and tacit knowledge; in the same effect, we will endeavor to decipher, explain and understand the underlying knowledge structure on which models Altman, Conan-Holder and Rating is based.

Description of the problem

The explicit knowledge according to Nonaka are types of knowledge that accumulate, process and exploit through rational thinking mechanisms of organizations; they are found in manuals, instructions, databases, regulations and hundreds of social / organizational rules that are applied by individuals in everyday life. By their very nature, explicit knowledge can be learned, taught, communicated both between different individuals and within organizations.

The tacit knowledge, according to Nonaka are defined as the knowledge derived from experience, intuition and imagination of individuals who are called to solve problems in an organizational framework; each employee performs and accepts the fact that organizational performance makes, largely appeal to experience, intuition and creative imagination, but we cannot express how exactly

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this mechanism scrolls in real life in the organization, since its operation reflects aspects of non-rational thinking (this type of thinking is called *intuitive knowledge*).

Whether it is about complex economic problems that are solved by some models applied in the real economy, or other fields of knowledge (chemistry, medicine, physics, etc.), we realize and accept somewhat automatically, as some kind of postulated the idea that we exploit appeal, mix constantly, explicit and tacit knowledge to achieve better performance in the organization - is relevant the conversion spiral of knowledge in organizational context brilliantly argued by Nonaka and other researchers (Nonaka, Konno, 1998). Finally, an important note for the interest focused on structuring this theme is that individuals possess and exploit both types of knowledge, but also *business organizations* (also true for any other type of organization), own and operate permanently with explicit and tacit knowledge (Brătianu ş.a., 2011):

- in majority, ***explicit knowledge*** owned by organizations take the form of innovations, inventions, patents, licenses, trademarks, commerce marks, appellations of origin, production rules, management rules, principles of consultancy etc.

- in majority, ***tacit knowledge*** owned by organizations take the form of what we call generically ***know-how*** or ***savoire faire*** respectively the part of a patent, a license or something similar that cannot be transmitted through sketches, drawings, application instructions, etc.; this part of the general knowledge held by the organization can be transmitted, rent or sold only when contact is made directly between the employees representing the two entities, respectively can be transmitted only through unmediated, direct experience.

Methodology and data sources

In the process of transmission of knowledge are often used demonstration simulators, using in parallel explanations using natural and / or conventional language, orally, in writing or by gestures. If the knowledge engineer proves the ability to reproduce exactly what was shown by words, in writing and gestures, it means that he has acquired ***explicit knowledge***, but it is not sure that he has learned the ***tacit knowledge*** that have been sent by default.

Tacit knowledge have two dimensions of embossing / viewing (Iancu, 2011):

- ***The technical*** dimension, which includes the type of skills and abilities indefinite and informal and often included in the term "know-how"; for example, the experts quickly create a lot of expertise, having a lot of years of experience, but they often have trouble in explaining, communicating, technical or scientific principles behind what they know, very subjective judgments and personal thoughts; intuition, senses and inspiration resulting from the experience of each individual belongs to this dimension;

- ***Cognitive*** dimension, which is in its own view, consists of perception, ideals, values, emotions and mental models rooted in the expert that are taken "for good", so they can not be easily transmitted; this dimension of tacit knowledge shapes the way we perceive the world around us.

Table 1

Several characteristics of explicit and tacit knowledge according to Polanyi

Implicit/tacit knowledge	Explicit knowledge
Non cognitive	Formally articulated
Derive from the individual's perceptions	Elucidated
Unconscious	Conscious
Cannot be played through explanations, writing, etc	Fixed
Based on experience	Coded
Transferred through conversion	In documents (written, printed, etc.)
Delivers immediate observation	Can be seen or heard
Kept in the "mind" of entity	Can be shared with others
Presumed to be true	Can be learned
Take the form of rules, postulates, axioms, etc.	Take the form of reports, lessons, etc

Source: After (McInerney, 2002), according to (Polanyi, 1962, 1983)

Again, without relating to a particular field of knowledge (economics, medicine, chemistry, etc.) we present in the table no.1 some of the ***main features*** that imposed in the literature on the two major classes of knowledge analyzed.

As deduced from the characteristics that differentiate tacit knowledge from explicit knowledge, we understand that ***this class of tacit knowledge reveals the essential qualitative part, which is used by an expert or an organization to solve the problems faced in time***; we are fully aware of the appeal to tacit knowledge and the benefits they provide to a human expert, but it is extremely difficult, sometimes impossible, to quantify them precisely, to measure their "volume", to shape them into mathematical language.

From the perspective of economic, financial and management problems that are already solved acceptably in business practice by appealing to different types of methods or analysis models it can be observed that ***all these theoretical constructions rely predominantly on processing of explicit knowledge, knowledge that is taken from various areas of accounting firms***, including accounting information which are "fingerprinted" by the participation of tacit knowledge, albeit in a more modest rate (Iancu, 2014). On the other hand, it is useful to note that the implementation and operation of these models, and the entire design and construction process prior to them, ***included and include the appeal to a certain volume, relatively modest in size, of tacit knowledge***. Statements are argued by their nature and the way it is organized the accounting function of the company, and through the fact that tree processing of accounting information to reach a finished version, relevant and useful in the decision process, requires the intervention of experts on accounting issues. Obviously, all the work done by accountants to process and synthesize data from a firm's balance sheet is based by default on the use of different types of tacit knowledge available to each employee. Based on empirical observations, experiments and direct contact in the business organizations, we further consider the following (Iancu, 2011):

a) whenever we refer to accounting information, we consider that about 94% of the entire volume of knowledge processed, handled and summarized for top management are ***explicit knowledge***;

b) Similarly, in direct connection with the operation of accounting information, other interventions of human experts, we believe that about 6% of the total volume of processed and handled knowledge is ***tacit knowledge***, *in the sense that they simultaneously meet the specific characteristics of this class as they were described in Table 1.*

Finally, other aspects of the nature of knowledge underlying economic and financial models, explicit-tacit distinction more clearly, may result in a tree description of economic models incorporated by an expert system designed to address this problem of major complexity.

Results obtained

Since from the pragmatic perspective it is impossible to mix / process simultaneously 'n' economic models applied on a case (given the complexity of accounting information and the minimum number of years to be taken into account), in the applied case, the argument is limited to the aggregation of three economic models Altman, Conan-Holder Rating.

Based on the requirements imposed by the type of information application of management (the accounting of a firm gives us a true picture of the economic and financial situation), taking into account the situation in the past and at the time of analysis, we can shape the future of the entity; the expert system concept designed took into consideration the three models of analysis mentioned above. Currently we only recall the basic facts about each model:

a) The score function developed by Altman is based on five cause variables, noted from X1 to X5 which through summation and weighting yielded a certain amount of score that will define the company's creditworthiness; based on the accounting system applied in various countries, the cause variables were subsequently redefined and reformulated (in some papers we find X1, the enterprise flexibility, X2 - self-financing rate assets etc).

The Altman model was one of the first that imposed in the world of international finance being mainly applied by banks in determining the creditworthiness of companies that were to be credited. When a commercial bank allocates substantial funds for investment in the medium and long term, the basic prudential rules oblige the bank to look further into the company's past (at least for the last four years), to assess as accurately as possible the management and marketing of the firm, the position of the firm on the market to be able to forecast the extent to which the company will reach or not bankruptcy during the "n" years in which it has to repay the bank the loan. Later, the Altman model underwent various adaptations, modifications and simplifications; today commercial banks apply simplified version of the theoretical principles underlying this model to determine the

creditworthiness of a customer including individual requesting a loan. Among other ways of applying the Altman model there are:

- Investment funds currently operating on the main stock markets apply this model to predict the future course of action listed;

- Other organizations or institutions that have different economic interests relating to acquisitions, mergers, reorganizations, seizure of competitors, etc. have financed large sums of money for choices more "finished" of the Altman model for predicting the risk of potential bankruptcy of a company;

- Similarly, other organizations such as rating agencies were and are interested in more sophisticated models through which to attempt to capture the situation of a company at a time and the possible bankruptcy in a reasonable course of time.

Finally, it must be said that Professor Altman was able to determine the weighting indicators of the mathematical function on a statistical analysis (discriminant function), over several years of efforts in which he followed in parallel:

- A group of about 200 companies, from various fields, which over many years have prospered, that had a permanent trend favorable on business cycle of the company (BCC), case in which some accounting indicators experienced significant improvements from one year to another;

- A group of about 200 companies of comparable size and location to the first one for which the developments during the "n" years of monitoring resulted in bankruptcy or in failures close to bankruptcy.

b) Use of Conan-Holder model, as application and interest field in the financial and stock world in different countries, did not move away significantly from the course had by the Altman model. Commercial banks, investment funds and others similar received with interest this theoretical construction as a tool for financial economic analysis of companies.

c) The rating model - rating of a company presents types of information about certain financial indicators of the company for various periods of time; for each indicator it is established a separate score that positions the part of the accounts of the company, and by summing results the overall score for the firm at the time of evaluation.

We must say that the rating model has been applied mainly by *commercial banks to establish the creditworthiness of companies* that were to be credited on certain intervals. In some states, such as for example France, central banks have intervened, commissioned and funded separate studies to estimate the risk of bankruptcy of enterprises, so that it was imposed in literature the so-called "method of scores" applied by commercial banks.

As mentioned, we believe empirically that each of the three models reviewed processes and operates various types of knowledge that can be shared as follows:

- About 94% explicit knowledge given by the information obtained from the accounting of the firm, regardless if they are in a more *raw* or finished stage when they contribute to the determination of indicators;

- About 2% tacit knowledge have been "put" in the accounting of the firm, in the sense of gradually induced in the regular operation process by accounting experts who have participated together in the tree structure of accounting information to the balance sheet;

- About 2% tacit knowledge that have been "brought" and "included" in the internal mechanism for calculating each model by experts who contributed to the design and finishing of the functioning module over time;

- About 2% tacit knowledge that are and remain associated with *bank official* or other expert who is called to apply, as appropriate, the Altman, Conan-Holder or Rating model (depending on skills and qualifications it is taken more or less stringent and relevant information from the accounting of the firm and are translated into the model to obtain the final score function).

Thus, we talk of explicit - tacit sharing of knowledge when it comes to structuring tree accounting information from personal account to the balance sheet; we discuss about explicit and tacit knowledge which are "put" in the operation of the three models and ***in the operation of an expert***

system. It is important to say that the effort to empirically quantify the amount / volume of tacit knowledge that are induced, as appropriate, in the accounting information in the Altman model or other similar model and the ES operation is a more methodological approach to give a unitary character of the research. ***In fact, not the amount of tacit knowledge that is mixed with a given volume of explicit knowledge is relevant (previous example: 6% to 94% for a given problem); contrary the qualitative side / dimension of tacit knowledge the human exports possess and induce in the analyzed processes remains an essential dimension to successfully solve an economic problem.*** It is clear that the assessment of "quality" that a volume of tacit knowledge has is an extremely difficult approach for any field of knowledge, including the economy.

As an example (fig. no. 1), we illustrate the manner in which the Altman model is based in its operation on explicit knowledge and tacit knowledge, all these following a tree structure of processing to obtain the final result; *mixing between the two categories of knowledge is one of chaotic type and we cannot determine, other than intuitively, the share with which each class competes in the final contour of the score function.*

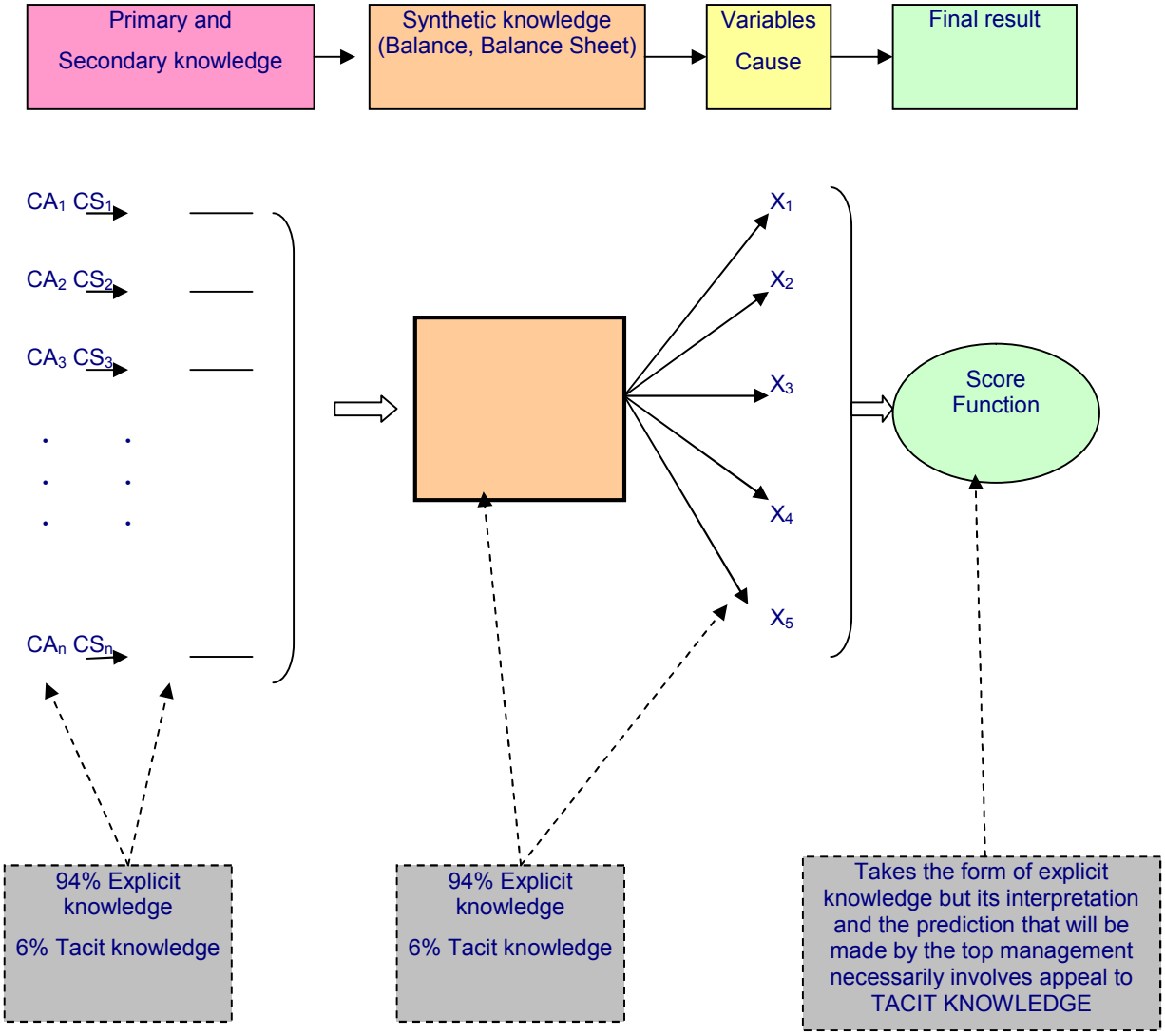

Figure 1. Altman Explicit and tacit knowledge in applying the Altman model

Conclusion type knowledge

Usually, the firm's superior decision maker evaluates the existing situation, the information available, other elements that define the market and competitors, trying to formulate a number of "n" scenarios about the possible future of the organization, i.e. traces "n" possible positions for the road of the firm on the BCC (Burciu, 1999). The appeal of the decision maker to various financial and economic analysis models and to various information tools for data processing available to him, is likely to support human experts in taking a strategic decision that will later reflect as closely in the road that will follow the company. However, the top management of the company (remark

applied for a bank at the time when is determined the creditworthiness of a company to which it is granted a loan for 10 years; similarly it applies to a credit institution, investment funds, etc.), develops the usual three possible scenarios:

a*) a realistic scenario (base)*, namely the one that best fits the objective realities of internal and external environment of the company; this scenario reflects realistically, as possible mathematically, ***the knowledge type conclusion*** that can be drawn from the accounting of the firm; Finally we discuss of knowledge type conclusion at the time when the data are taken from personal accounts to synthetic accounts (occurs general first conclusion), and then from synthetic accounts to balance (occurs second general conclusion), then from balance to balance sheet (occurs third general conclusion) and subsequently from the balance sheet in preparation of documents describing the overall situation of the company (occurs fourth essential synthetic conclusion);

b) *a pessimistic scenario* against which the decision maker must be psychologically prepared and have thought preventive measures such as, for example, a positive cash-flow for the months ahead; this scenario takes into account ***the knowledge type conclusion*** provided by the accounting of a firm but takes into account certain turbulences occurred at macroeconomic, regional, global level, etc.

c) *an optimistic scenario*, which appears as an extension of the base scenario, i.e. as a possible hypothesis given by the fact that some premises on which the baseline scenario is based will witness a significant improvement, whatever the cause of this improvement (market, competition, the revenue boom periods, etc.).

Conclusions

The purpose of the various economic and financial models, including the three models put forward, is that based on the analysis of the past of the evolution of the company to be able to make the most realistic scenarios regarding the health of the company in the years to come. Thus, the senior decision maker of the firm, either he uses the Altman model or another one similar, or he cumulates the three models (database processing in this case cannot occur without the support of an efficient information system) wants to see ***a sum of knowledge type conclusions often preferred as a graph***, as it is extremely meaningful and easy to interpret.

Obviously, at the end of the application of any model through which it aims to capture the economic and financial situation of a company (in the general sense we discuss of "n" economic models based on explicit and tacit knowledge), the synthetic conclusion resulting will mandatory include in its structure two large classes of knowledge in Nonaka sense:

- A certain volume, structure and forms of *explicit knowledge* forms through which is 'quantified' in mathematical sense the health of the company of the company analyzed;

- A certain volume, structure and forms of *tacit knowledge*; they are sometimes part of the conclusion statement itself resulting from the application of the model (this happens rarely); in majority, ***tacit knowledge will be used extensively at the time when the top management interprets the statement through the final conclusion is made when applying the economic model.***

Finally, if we want to deepen the research on the conclusion type knowledge resulting at the end of the application of the "n" models of economic analysis, it is appropriate to discuss briefly about the written form such conclusions take (electronic or printed). We understand that a part not at all negligible in stating conclusions for such complex analyzes will also have a verbal form, through discussions and interpretations, divergent views among specialists who summarize such conclusions to be made available to top management. We appreciate, however, that predominantly conclusions type knowledge take *a written form* and their statement often have three distinct types:

- A statement in the form of mathematical formulas on the variables / indicators accurately quantifiable, case that in such conclusions rests 100% on the ***explicit knowledge***;

- A statement in the form of accounting formulas and other formulas alike (economic and financial), case in which we estimate empirically that such conclusions rest in proportion of 98% on ***explicit knowledge*** and 2% on ***tacit knowledge***;

- A statement in a description form, of type report, note, etc., case in which the resulting conclusion in its entirety (or part of the overall conclusion, as far as that part is specified descriptive), mixes in almost equally proportions of tacit and explicit knowledge; Empirically, we say that such conclusions are based on 50% of explicit knowledge and 50% of tacit knowledge.

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SMALL AND MEDIUM ENTERPRISES VULNERABILITIES IN THE CURRENT FISCAL CONTEXT

Nicoleta MIHĂILĂ[86]

Abstract

SMEs in Romania pass through a turning point. They “have acquired" a fragile stability that manifests differently, depending on the size and economic activity sector, or from one region to another. The situation that has been reached is caused, mainly, by entrepreneurs' fiscal obligations to the state and the lack of the state’s policies to encourage , pushing them towards insolvency and high levels of indebtedness. Basically, SMEs are affected by vulnerabilities that prevent them to grow and develop sustainably.

In this context, in this paper we intend to highlight the main determinants of SMEs' vulnerability and suggest possible solutions to reduce it within the enterprises activity so that to ensure their financial stability.

Keywors : SMEs, fiscal obligations, vulnerability, legal and fiscal framework

JEL Classification: D81, H32, K22

Introduction

The vulnerability, also known as the sensitivity / weakness of the economic agent, represents its negative feature which; not identified on time and corrected it may lead to bankruptcy, destruction. The vulnerability is a key factor in building the economic agent performance, its impact causing the "health", image, credibility, market position.

Theoretical considerations regarding the enterprise vulnerability

The vulnerability is an indicator of future state of a system, defining the degree of capacity of the system to cope with the expected stress (Smith, 2001). In general terms, vulnerability can be understood as the predisposition or the susceptibility of an element to have negatively affected due to external causes.

Another definition of vulnerability has a profound quantitative character and represents the loss that an item or group of items (people, structures, goods, services, economic or social capital, etc.) exposed to a certain risk is expected following a disaster or hazard. The vulnerability is expressed on a scale of 0 to 1, or from 0% to 100%.

From the perspective of the manager, the vulnerability is part of the company that may prevent the achievement of company objectives. There are two aspects that define it: internal factors that destroy values, on the one hand, and internal conditions not sufficiently well focused to be able to create competitive values in the globalized world.

The weakness of the organization is a negative aspect for itself and for the economic environment in which it operates, being necessary to remedy as soon as possible, since it can easily degenerate into threat, subsequently into state of business interruption.

The vulnerability of firm may be temporary or permanent, depending on the difficulty of the problem to be overcome, namely internal and external the organization, according to the factors that determine this sensitivity.

Factors that influence the enterprise’s vulnerability

Weak points of the organization are usually under managerial control, but due to lack of effective management (timely and accurate), those elements are degraded to the status that obstructs the firm to obtain or maintain a competitive advantage.

A definition of internal vulnerability consists in the cause that obstructs an advantage of the company by exploiting an external opportunities.

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It should be noted that some factors, causing although firm's vulnerability, can be improved.

The determinants of firm weakness may be internal or external to entity.

Among those belonging to the internal environment of the the enterprise, we include:

- High costs necessary for firm activities compared to the financial resources owned;

- Limited material resources. This may be an obstacle if there is no proper management;

- Lack of access to new technologies;

- Lower demand of services;

- Lack of experience of business owners and external factors on which they have no control (new competitors, suppliers or lack of personnel fluctuation).

Being vulnerable means that the economic entity is unable to resist with certainty to a phenomenon / event with an impact on its financial condition. We believe that vulnerability is the result of the difficulties the firm is facing with, and which it can not easily overcome, or worst, not at all.

The causes of this state of the organization are multiple:

a) firm characteristics: size, number of employees, turnover. The company has weaknesses when, although with a large number of employees, the staff is not competent, or it lacks the motivation, teamwork, the turnover is below the expected level, the assets are impaired, etc.

b) the company image, respectively the state of "health". It is mainly reflected in the economic and financial performance indicators: turnover and profits, profitability rates, liquidity and solvency, steady state. They must have positive values, satisfactory to the management, indebtedness degree as low as possible, and others.

The organization is vulnerable when holding debt is unable to pay them and the liquidity is not sufficient, the costs related to various processes of production, sales, delivery and resources are too high and limited resources or below.

c) the activity is the key factor in the company's state of vulnerability due to the location where the firm is placed, the involvement of the state through various taxes, facilities in certain sectors, unpredictable events (droughts, floods, natural disasters).

The sectors where the firm works are industry, construction, trade, transport, services, the degree of vulnerability being, in a smaller or greater size, in any of these economic sectors. The financial structure of the entity, reflected in the balance sheet, varies depending on the activity in which it operates.

In industry, the structure varies depending on the nature and duration of technological processes, the optimization of productive flows being capital. The production cycle is longer, the entity should have more important funds for major investment required, for important storage, its bearing fund being absorbed by the significant expenses involved in this cycle (mainly personnel expenses) . In trading and distribution intangible assets are less important, but stocks are significant, and calling the credit provider is frequently used, being very easy to treasury business.

In principle, there is no template structure of the balance of economic entities, specific features of each of them and the particular situation in which an entity can be found printing significant variations of these balances from case to case.

Also, a certain economic conjuncture (economic growth or recession) may distort the way the balance sheet structure reflects the objective reality at thr analyzed business level.

Vulnerability and the economic agent’s performance level

In crisis conditions, smaller enterprises, in particular, are most vulnerable to financial difficulties, as they often lack the resources to adapt to changes of market conditions that change rapidly. It is essential that they pay particular attention to their finances, especially potentially serious problems that are not always immediately visible.

Yet small firms may prove that they can successfully pass over this period having certain advantages compated to the large ones:

■ Flexibility - it is often easier for small firms to change the business strategy and even a change of direction depending on the market conditions (exploring new sales channels or new markets). ■ Financial control - is easier to reduce costs in a smaller organization, including moving the headquarters or temporary employment.

■ Fast response (rapid reaction) - the entrepreneur / owner is closer to customers than the head of a large corporation; it can infer the spirit mood, try to anticipate what will be required and therefore to act rapidly to keep the customer base of the company.

■ Access to the support and assistance - especially from governmental organizations, most of these measures and institutions specifically designed addressing for small and medium firms. There are also a number of arguments against small businesses and their power to successfully overcome the global recession:

■ Vulnerability to delay in paying bills - the cash flow will suffer when customers delay payments due, especially since small firms - as opposed to larger ones - do not have reserves specially created for these situations.

■ credit lines granted by banks, indicating that in the current lending conditions by banks is extremely difficult.

■ reduced bargaining power with suppliers - purchasing power is low and therefore can not obtain discounted prices. Large firms that can afford to order large quantities are in the favorable position of the market and may lead to lower prices.

The firm's vulnerability represents an essential factor in the evolution of its performance; it can be highly vulnerable, its profitability being compromised "from the beginning" or vulnerable in certain sectors, or, in rare cases, there are strong companies that have no weak points (in this respect we believe that there is no firm on market which presents any weakness) and their performance to maintain, respectively grow.

Relevant general information regarding the current situation of SMEs

Romanian economy is supported by the activities of SMEs and large companies, especially by those with majority foreign capital, but also by those with state capital. Although their numerical weight is over 99.7% of the total number of enterprises, SMEs influence on the economic development of the country is much lower (by approx. 55-56% of GDP).

Most companies in Romania started as family business, based on a minimum of knowledge of the people involved in running the business. Educational and technical level of most SMEs allow their economic survival, but the chances of attracting, hiring and maintaining in activity the skills, especially managerial, technical and market ones are still rather limited. Many enterprises had not set right market penetration targets or increase market share, not considering ncessary the attraction and employment of specialists, eg in product quality or in promoting it on market, the focus usually being the achievement of production and the employer's ability to manage / maintain the business 'afloat'.

Relevant statistical data show that about 57% of present micro enterprises are firms of subsistence, which allow a certain standard of living only to business owner and his family.

At macroeconomic level, the specific problems of SMEs in Romania, which determine the size of vulnerability degree are:

- The issue of critical mass of SMEs - too few active enterprises in the economy;

- The problem of gauge business / corporate dimension - too few medium-sized enterprises;

- Sectoral structure problem - too many companies operating in services and trade;

- Issue of new business resilience - two-thirds of new businesses go out of business in the first year of life.

At microeconomic level, critical factors for economic activity and prospects of development of SMEs in Romania are:

- Proper management of cash flow of the company;

- The business adequately capitalization according to the stage of development of the enterprise and predictable prospects for its development;

- Revamping the company and increase the capacity of attracting and retaining creative talent within the individual organizations

- Reducing barriers to enter the market new enterprises and respectively the barriers to leave the market of companies found to be unviable (by their negative financial results) ;

- Strengthening networks of entrepreneurs and dissemination relevant market information among them;
- Internationalization of the company's business.

Basically, among the factors influencing the enterprise vulnerability we mention: the absence of provisions allowing the fiscal consolidation; very limited provisions regarding the economic substance of fiscal residence; lack of stability and coherence of the Romanian tax legislation; difficulties in fiscal conformance due to lack of clarity of tax legislation and inconsistency of viewpoints of tax authorities on various topics; introduction of new taxes coming to compensate / supplement the affected budget and the introduction of favorable tax provisions; relatively short time in which the proposed legislative drafts come into force; lack of an effective and transparent communication between authorities and business environment.

According to a study conducted by the National Council of Private Small and Medium Enterprises in Romania, the situation of SMEs at the moment is not exactly favorable, as can be seen from the perspectives of entrepreneurs for the coming years, which shows that the most prominent goal is to keep the business at the present level.

Small and medium enterprises in our country have very limited performance targets. More specifically, the main objective for the SME for the next two years is keepind the business to current dimensions.

The state of uncertainty of entrepreneurship in our country is visible in the activity of forecasting. Despite improving percentages compared to last year, 42.8% of SMEs do not draw up plans for the next two years, down from 55% last year, while the percentage of those who think at the next 48 months amounts to 46.4% (up from 38.5%). The rest, 10.8%, develop strategies extending over three or five years. Moreover, as the company is smaller, the more the forecast area is narrower: while for medium-sized enterprises we have a share of about 16% in which do not find any plan, the percentage rises to nearly 50 % for micro enterprises.

Not surprisingly, the company's performances also depend on the ability of forecasting. According to the study, companies that do not do their plans have very poor performance in proportion of 50% and 54.1% of SMEs aim for the next two years at maintaining the business at current size. Slightly more than one-third, respectively 36.7%, estimate a moderate expansion of the business and only 4.8% take into consideration a rapid expansion. It is hard to find the optimism in the responses of entrepreneurs, but we already find here the situation of domestic private economic environment.

Regarding the number of companies registered in the period 2009 – the last 7 months of 2014, the Romanian economy has 450,000 companies (firms with larger business than zero), with a cumulative turnover of 250 billion euros last year , but with also about 180,000 active companies with zero business.

Table 1

The evolution of registered firms

Year	2009	2010	2011	2012	2013	2014
Number of registered firms	72.445	67.461	88.078	81.086	86.694	63.331
Dynamics compared to the year before-%	-	-5%	29%	8%	3%	-24%

Source: The Trade Register Office, 2009-2014 Summaries

Statistical data show that the peak of registrations was reached in 2011 (over 88,000 companies), after which, one year later, the explosion of new companies could have been seen in doubling the number of companies dissolved (from an average of 6000- 7000 companies in the period January - July 2010-2011 to more than 13,000 companies dissolved between 2012 and 2013). In other words, from an average of 10% of the total dissolution of 6000- 7000 companies established one year ago, it has reached an average of 15% in 2012-2013 and a record of insolvencies in the local economy. This year, however, the number of companies dissolved decreased by 23% during January - July, to 10,600 businesses, other indicators that might give investors confidence being decreasing the number of insolvencies (minus 13%, up to 15,000 companies) and decrease in radiated companies (-2% to 48,000 companies)

Even if the decrease of new companies could be a signal that the period for started business ended only as an alternative to lack of a job, it is vital that the authorities encourage entrepreneurship, especially among young people.

Romania places the second lowest in Europe in terms of number of SMEs reported per thousand inhabitants (25 companies per 1,000 inhabitants) Poor development of entrepreneurial culture in Romania has many causes, including low appetite for risk of Romanians, excessive bureaucracy for setting up and doing business, lack of capital and financing mechanisms for start-ups, the inadequacy of academic programs, including often the missing entrepreneurship education.

Conclusions

The permissiveness of legislation and the one of competent authorities, in conjunction with an extremely high level of taxation, especially for a country in transition to a genuine , viable, real market economy, led to creating the environment less favorable to business development in Romania.

We believe that simplifying the tax system and creating predictability in a fiscal framework to stimulate private and public economic environment to develop is particularly important for the business environment, especially for small and medium enterprises.

Not adopting measures aimed at simplifying the tax system and tax structure, respectively decrease the tax burden that taxpayers support would lead :

- To discourage business investment in a period in which the effects of the crisis are still being felt , requiring immediate stimulation to entrepreneurs through any type of measure, including the reduction of administrative burden;

- Maintaining Romania's image internationally as a state with a very dense and complicated tax system hardly known and respected by investors which inhibits investments and initiative;

- The need to limit the financial crisis effects that are still felt by the economic operators, taking rapid measures to reduce the tax burden, respectively to eliminate a significant number of charges / fees in order to keep a balance between revenues to the state budget and stimulating the business environment and simplifying the access to public services, measures that will encourage private initiative and implicitly the economic recovery;

- Negative consequences that could arise from perpetuating a heavy taxation mechanism, inflexible and excessively burden, some that could constitute a real obstacle to the process of economic growth.

In conclusion, SMEs are heavily influenced by the vulnerability, especially in times of crisis, and the values of economic and financial performance indicators are falling, which is an impediment to development.

The determinants of enterprise's weakness are bound mainly by the activities of the firms, their financial condition, size and turnover etc.

Also , the vulnerability of firm is caused by obstacles due to the financial crisis, especially if it is not possible for them to overcome, remove.

The main difficulties that SMEs are facing with can be divided into two parts: those relating to production (lack of capital, lack of credit, payment difficulties, lack of qualified employees, lack of technology, lack of raw materials) and those regarding the demand (the absence of solvent

demand, strong competition, low market prices, lack of awareness, lack of ability to use marketing tools)

According to the researches, the main obstacles of the company are:

- Decrease in domestic demand
- Excessive taxation, bureaucracy
- Delays in paying bills from private firms
- High costs of credit
- Inflation, the relative instability of the national currency,
- Difficult access to credit,
- Development of the legislative framework, policy changes, etc.

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LINEAR PROGRAMMING METHODS FOR SOLVING THE PORTFOLIO'S PROBLEMS

Alexandra TKACENKO[87]

Abstract

It is well known that the portfolio optimization involves creating the stock portfolio minimizing the risk for a required return or maximizing the return for a given risk level. The mathematic model of these kind of problem is one of quadratic programming type. Because the solving procedure of these type of models is more complicated, in the proposed work will bring alternative models for solving a portfolio's problem. Particularly in the paper is proposed some techniques and considerations for non-linear portfolio's model transformation in one of linear or linear fractional type. The last ones leads to streamline the process of solving the initial model. The proposed methods have been verified practically on several examples and have been found very effective.

Key words: portfolio, risk, benefit, linear programming, fractional programming.
JEL Classification: G11, C61

1. Introduction

The portfolio problem consists in the determination of some efficient portfolios that can be proposed to the economic agents that plan an investment in valuable papers, to obtain a maximal income at a minimal risk. Professor Harry M. Markowitz [6] said, "a good portfolio is more than a long list of securities. It is a balanced unity which similarly offers the investor chance and protection below a variety of possible future developments. The investor should therefore aim at an integrated portfolio which takes his individual requirements into account." He won the Nobel Prize in 1990 for his research in the field of economic portfolio theory. His Portfolio Theory is based on empirical sizes, which analyze the connection between risk and return. Every economic agent knows that for to obtain a higher benefit, it is supposed to take a certain risk. *The portfolio means a set of real assets, including financial, in which an Enterprise can have its investments at a given moment.* [1],[2]. In portfolio's decision, the Enterprise should begin with the fact that the structure and characteristics of the entire portfolio are more important and require more attention than each asset of the portfolio by part; an extremely risky asset thus can be kept in a portfolio together with other assets with a lower degree of risk. When the decision to add an asset to an existing portfolio is made, the Enterprise should consider the effect that it will have on the value of the Enterprise, but also on the structure of its entire portfolio. For analyzing this last influence, the deciding part should consider *the rate of the income of portfolio and the risk,* represented the average and standard deviations. The portfolio theory supposes that for a certain risk level, economic agents plan an investment of a certain amount in securities, the purchase proportion being elected with the intention to have a maximal benefit at a minimal risk. The benefit shall be measured as the average value between continuously calculated rates during the year, while risk – in terms of dispersion and covariance. It is obvious that for economic agents it is more suitable to make investments in an efficient portfolio. *A securities portfolio is considered efficient if there is no other portfolio with higher benefit and lowed degree of risk, with a higher benefit and the same risk degree or with the same benefit and a lower degree of risk.* Nowadays problems of optimal portfolios acquired a very large scale, because it came in various economic and financial sectors. Thus the optimal portfolio problems are studied in various forms by deterministic or fuzzy data [3]. Frequently it is formulated as a multiple criteria optimization problem for which use special algorithms [7], leading to the determination of a set of solutions effectively. As a rule, but the decision maker selects between them a solution, the best, called optimal, which increases the importance of one criterion optimization models.

2. Mathematical optimization model of the portfolio problem

If we understand the concept of the efficiency of portfolio we can speak about the formulation of the problem. We have two tendencies in the portfolio problem: minimizing risk and maximizing the benefit. We will study several models of quadratic programming, which once being solved will

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determinate efficient portfolios. They can be founded in dependence of the requests imposed by the investor [6].

We make the next notations:

x_j – the part of the capital reserved for purchasing securities of j type,

r_j – the average value of the efficiency of j type securities during the whole T period,

$\sigma_{ij} = \frac{1}{T}\sum_{t=1}^{T}(x_{it} - r_i)(x_{jt} - r_j)$ – the covariance of securities,

x_{jt} – dobanda obtained from the investment in j – type securities during t period,

B – the total budget invested in the portfolio,

i, j – types of securities,

T – the whole investment period,

t – a period of time taken from T with a certain step,

q – the maximal level of risk that the investor is able to take.

We find the next optimization model:

$$\sum_{j=1}^{n} r_j x_j \to \max,$$

$$\sum_{j=1}^{n} \sigma_{ij} x_i x_j \leq q, \qquad (1)$$

$$\sum_{j=1}^{n} x_j = B = 1, \qquad x_j \geq 0.$$

In this case, the investor is interested in maximizing the benefit by assuming a certain risk, which level doesn't have to pass the q value.

When the economic agent that plans the investment tends to a minimization of risk while having a pre-established benefit, the mathematical model is modified, taking in consideration the new requests:

$$\sum_{j=1}^{n} \sigma_{ij} x_i x_j \to \min,$$

$$\sum_{j=1}^{n} r_j x_j \geq \propto \cdot B \qquad (2)$$

$$\sum_{j=1}^{n} x_j = 1, \qquad x_j \geq 0.$$

$\propto$ – the minimal benefit requested by the investor.

The portfolio problem raises a special interest when two objectives that require simultaneous optimization are imposed. In this case, an objective – function of aggregation is examined, and it is represented as follows:

$$z = \sum_{j=1}^{n} r_j x_j - \sum_{j=1}^{n} \sigma_{ij} x_i x_j \to \max \qquad (3)$$

$$\sum_{j=1}^{n} x_j = 1, \;\; x_j \geq 0.$$

So but optimal portfolio problem solving assumes either solving the problem of non-linear multi-criteria optimization, ie models 1-2 or solving the problem 3, which is also non-linear. In the first case is going to propose efficient algorithms for constructing a set of efficient solutions, while in the second only an optimal solution.

Definition 1. The vector of invest $X = (X_1, X_2, ..., X_n)$ is one available portfolio for the portfolio's model if it satisfies the availability conditions of this.

Definition 2. The available portfolio $X^* = (X_1^*, X_2^*, ,..., X_n^*)$ is one optimal if it optimizes the objective function of portfolio's model.

This type of model that targets are the simultaneous optimization of two objectives was proposed by Markowitz that - as previously been mentioned - for the first time in the modern history of portfolio has described the risk - yield relation and constructed the famous theory of *Average-Dispersion* [6]. Based on his theory, investors can find optimal portfolios. This conclusion was a very important step for the theory of capital markets. William Sharpe said about Markowitz that he came with an idea that made order and light in the way where the investors had to choose their titles.

Some inconveniences of the Markowitz's model:

•Computational burden: We have to calculate n(n+1)/2 constants of deviations; it's not easy to obtain an optimal solution of large- scale quadratic programming problems on a real time basis.

•Investors' perception against risk and distributions of stock prices: Many practitioners were not fully convinced of the validity of the standard deviation as a measure of the risk; the investors' perception against risk is not symmetric around the mean. This is why the Markowitz's model should be viewed as an approximation to the more complicated optimization problem facing an investor.

•Transaction/ Management cost and cut-off effect: An optimal solution of a large-scale quadratic programming problem many nonzero element, that is very inconvenient from practical point of view, because we have to pay significant amount of transaction costs to buy many different stocks by a small amount. We may not be able to purchase small amount. We may not be able to purchase small amounts of stock below minimum transaction unit. We have to round the numbers to the integer multiples and solve the integer quadratic programming problem.

3. Model with linear fractional criteria Sharpe [8]

The main idea of the method consists of replacing of the two criteria Markowitz portfolio's model (1)- (2), (3) with one of the linear fractional type.

Keeping the previous notations and accepting these:

$c\ R_j - a\ random\ \text{var}iable\ of\ \ return\ rata\ \ for\ asset - j,$

$r_j - the\ \exp ected\ return\ (per\ \ period),\ often\ given\ by\ \ relation\ r_j = E\lfloor R_j \rfloor,$

$\sigma_{ij} = E\lfloor (R_i - r_i)(R_j - r_j) \rfloor - the\ \text{cov}ariance\ of\ \ \text{sec}urities,$

$$\sigma(x_1, x_2, ...x_n) = \sqrt{E\left[\left\{\sum_{j=1}^{n} R_j x_j - E\left[\sum_{j=1}^{n} R_j x_j\right]\right\}^2\right]} - s\tan dard\ \ deviation;$$

We propose to study the optimal portfolio model in which the objective function is of fractional type, of course keeping the conditions of admissibility of the solution, it is the next:

$$\frac{\sum_{j=1}^{n} r_j x_j}{\sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} x_i \sigma_{ij} x_j}} \to \max \quad (4)$$

The proposed criterion involves maximizing the return on the portfolio per unit of risk.

Is also popular, another, first proposed by Sharpe criterion:

$$\frac{\sum_{j=1}^{n} r_j x_j}{\sum_{j=1}^{n} \beta_j x_j} \to \max \quad (5)$$

where β_j - regression coefficient between stock returns and market j .

The solution procedure of the problem (4) - (5) is reduced to the applying of greedy algorithm in the sequence for a simple linear problems with parameter [4].

4. Linearization procedure of the portfolio's model

We introduce the next risk function [5] of absolute deviation:

$$\omega(x) = E\left[\left|\sum_{j=1}^{n} R_j x_j - E\left[\sum_{j=1}^{n} R_j x_j\right]\right|\right]$$

Instead of the standard deviation function per each time period.

$$(\sigma(x) = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} \sigma_{ij} x_i x_j} - the\ s\tan dard\ \ deviations)$$

$$(R_1, R_2, ...R_n)$$

These two measures are essentially the same if are multivariate normally distributed.

Theorem

$$If\ (R_1, R_2, ...R_n)\ are\ multi\,\mathrm{var}\,iate\ normally\ distributed, then\ the\ relation:$$

$$\omega(x) = \sqrt{\frac{2}{\pi}}\sigma(x)\ is\ true.$$

Proof

Let: $(\mu_1, \mu_2, ...\mu_n)$ *be the mean of* $(R_1, R_2, ...R_n)$ *and* $(\sigma_{ij}) \in R^{n\times n}$ *be the* covariance *matrix of* $(R_1, R_2, ...R_n)$, *then* $\sum_{j=1}^{n} R_j x_j$ *is normally distributed* (Rao, 1965) *with mean* $\sum_{j=1}^{n} \mu_j x_j$ *and standard deviation* $\sigma(x) = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} \sigma_{ij} x_i x_j}$.

Therefore,

$$\omega(x) = \frac{1}{\sqrt{2\pi}} \times \frac{1}{\sigma(x)} \int_{-\infty}^{+\infty} |u| \exp\left(-\frac{u^2}{2\sigma^2(x)}\right) du = \sqrt{\frac{2}{\pi}}\sigma(x).$$

The last relation proof the linearity of the risk function of absolute deviation and implies that minimizing $\omega(x)$ is equivalent to minimizing $\sigma(x)$ if $(R_1, R_2, ..., R_n)$ is multivariate normally distributed. Thus we are led to an alternative risk minimizing problem, which is the following:

$$\min E\left[\left|\sum_{j=1}^{n} R_j x_j - E\left[\sum_{j=1}^{n} R_j x_j\right]\right|\right]$$

$$\text{subject to } \sum_{j=1}^{n} E[R_j] x_j \geq \alpha B, \qquad (6)$$

$$\sum_{j=1}^{n} x_j = B,$$

$$0 \leq x_j \leq u_j,\ j = 1,2,...n.$$

In model (8) we kept the notations and meanings of variables like from the models (1)-(3) and also considering that the variables $\{x_j\}$ have certain limits of variation $\{u_j\}$, $j = 1,2,...n$

Either we suppose: r_{jt} be the realization of random of variable R_j during period $t(t = 1,2,...T)$, and that the expected value of the random variable can be approximate by the average derived from certain data. In particular we can consider: $r_j = E[R_j] = \sum_{t=1}^{T} r_{jt} / T$.

Then $\omega(x)$ can be approximated as follows:

$$E\left[\left|\sum_{j=1}^{n} R_j x_j - E\left[\sum_{j=1}^{n} R_j x_j\right]\right|\right] = \frac{1}{T}\sum_{t=1}^{T}\left|\sum_{j=1}^{n}(r_{jt} - r_j)x_j\right|$$

By noting with: $a_{jt} = r_{jt} - r_j$, $j = 1,2,...,n$; $t = 1,2,...,T.$, the model (6) becomes the next:

$$\min \sum_{t=1}^{T}\left|\sum_{j=1}^{n} a_{jt} x_j\right| / T$$

$$\text{subject to } \sum_{j=1}^{n} r_j x_j \geq \alpha B, \qquad (7)$$

$$\sum_{j=1}^{n} x_j = B,$$

$$0 \leq x_j \leq u_j,\ j = 1,2,...n.$$

By applying of some elementary transformations in the model (7), we obtain the its equivalent model (8), which is the following:

$$\begin{aligned} & \min \sum_{t=1}^{T} y_i / T \\ \textit{subject to} \quad & y_i + \sum_{j=1}^{n} a_{ij} x_j \geq 0,\ t = 1,2,....T, \\ & y_i - \sum_{j=1}^{n} a_{ij} x_j \geq 0,\ t = 1,2,...T, \\ & \sum_{j=1}^{n} r_j x_j \geq \alpha B, \\ & \sum_{j=1}^{n} x_j = B, \\ & 0 \leq x_j \leq u_j,\ j = 1,2,...n \end{aligned} \qquad (8)$$

We can state, that the optimization model (8) is one of linear type. Obviously, comparing the obtained model (8) with the Markowitz 's model (3) and with Sharpe's models with objectives (4) or (5), we can say, that the latter certainly is more simply to solve both in terms of methodology, and of the solving time. In order to solve the model (8), we can use quite effectively simplex algorithm for solving of linear programming problems.

5. Conclusions

Portfolio problem remains one of the most requested in solving decisional situations not only in the financial sector, but also from various economic fields. Due to the nature of the portfolio problem and its formulation, and the requirement to find at least one its optimal solution, confirm evidently of the nature of the mathematical optimization problem. In this paper we focused on simplifying its procedures, reducing it to one linear programming type. This was possible using the absolute deviation for the risk function of the classical Markowitz's portfolio model. So, we made it possible to use the classical simplex algorithm for solving the eventually a nonlinear programming problems. The necessary theoretical justifications are made in the paper. The method we have developed is accurate and efficient enough to solve realistic problems in a reasonable amount of time.

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SUSTAINABLE ECONOMIC DEVELOPMENT

NATURAL RESORCE TAXATION
FROM THE SUSTAINABLE ECONOMIC PERSPECTIVE

Răzvan BĂLĂŞESCU[88]

Abstract

In a narrow sense, taxation of natural resources is related to royalties that reveal the fiscal advantage of a concrete and rapid cash public revenues.

In a large sense, the present paper takes into account both an legal, technological and fiscal management of natural resources to encourage the inter-temporal investments in the field of exploration and exploitation as well as the ideological map of neoclassic and institutional socio economic determinism.

In this respect ,the topic proposed is related to the resource curse problem meaning the two sides of a same coin: natural resource taxation is not only a simple political problem of rentier corruption but also an obligation to manage the question of negative externalities on economic capital portofolio structure generated by the illusion of mineral sector booming leadership.

Keywords : natural resurce taxation,resource curse,socio economic determinism

Jel classification: H23, N5,Q01

From a narrow point of view, taxation of natural resources could be only a profit maximization objective policy tool both for public authorities and private investors interests related to exploration and exploitation of national soil and sub soil resources through one of the elements of fiscal system- royalties (lat. Rebedere or fr. Redevoir)- as a payment owned to public budget in a fixed amount at a convenient date, as a right of using an other legal or natural person property.

In a large sense, natural resources taxation is connected to sustainable development prerequisites of the triple bottom line strategy in so called Mineral Sustainable Development approach (MSD),a fiscal partnership construction for sustainable use of natural resources.

That implies both a quantitative and qualitative approach, as a space of an efficient fiscal action for the first one, and as a space of ideological thinking for the other, taking into account its economic, social, environmental, political, and cultural burden of choosing between an apparent curse of natural resources or the chance to develop the free will exercise oriented to a society with a stronger values system compatible with human dignity, raising the material and spiritual standard of living.

Thus in short, natural resource taxation takes into account the following aspects:

-non-regenerable material and compositional geologic characteristics of natural resource deposits and reserves and their utility on the supply chain flow ;

- the mineral property rights and contractual issues between the owner of natural resources and the exploration investor in the way from possession to property;

- the mineral project risk management that affects the exploration and exploitation decisions and their financial consequences ;

- the state authority intervention within a fiscal partnership respecting the fundamental principles of public government ownership, competitive return for private investors, efficiency, stability and simplicity of the fiscal framework;

-the necessity of a realistic approach of a mineral sustainable development related to resource curse theory incorporated into market failure or institutional political determinism to promote socio

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cultural and politic values of fair completion,poverty reduction, promoting educational scholarships and a moral public interest transparency;

In conclusion, the MSD approach of natural resource taxation is an intergenerational one, both technical and ideological, to encourage the human spirit to become a realist optimist for a sustainable use of natural resources as well as to become more careful to its surrounding environmental social and economic environment.

In this framework, the first step of a mineral sustainable development concept (MSD) was stated at the World Summit on Sustainable Development in in Johannesburg(2002) and in its paragraph 46 of the Johannesburg Plan of Implementation (JPOI),that in course of time promoted a natural resource project management perspective in the field of mining, minerals and metals sector.

The MSD perspective takes into account the importance of a network containing the relationships between natural, legal, techno-managerial and financial factors implied in the construction of a fiscal partnership for a sustainable use of natural resources.

In this framework, geologic factors are of first-order importance to illustrate the impact of deposit and reserve definitions both at spatial and temporal level related to:

- specific matter characteristics of natural resources-its typology(solid or fluid),volume(as spatial and temporal dispersion), composition(as pure or complex minerals);

-the economic utility of minerals, the capacity to apply and discover adequate technologies on the way from extraction to intermediary and final stage of production for obtaining desired goods and services;

-globalization problems in the field of resource controls war;

-volatility issues related to risky investments due higher technological costs, changing consumer market pattern, or public regulations.

Secondly, the fiscal mining partnership is influenced by the constitutional mineral property rights in the way from possession to property.

As mentioned by some authors like Rolf Steppacher(2006),Ana Elizabeth Bastida(2004) or Eva Liedholm Johnson(2010),the mineral rights illustrates a combination matrix that tries to protect both the public and private interests through an automatic adjustment system, a state intervention or an limited contractual agreement between parties, inspired by the fundamental constitutional legal systems of natural resources :

-.Minerals belong to the Landowner(the principle that that minerals belong to the owner of the land);

-Regalian System(a sort of public private partnership in the exploration and exploitation of natural resources);

-Dominial System(the absolute power and authority of state over the natural resources);

-Minerals as res nullius (that mines belong to the first person who discovered the deposit or the reserve of natural resources).

Thirdly, the natural resource taxation is influenced by project management features related both to evaluation and optimization of mineral investment projects risks and benefits within a so called Minerals Resource Management(MRM).

As it mentioned by Debasish Mohapatra(2009) or Carel Pieter de Jager(2005) or Philip Daniel et al.(2010) the MRM factor takes into account the possibility of an optimal exploitation of natural resources ensuring optimal means and possible positive outcomes.

This requires a planning and effective management control of team working responsibilities taking into account a broad and systematized data base containing geologic, legal, and economic informations,the specific optimization methods of geological and financial mineral risks-the so called Basic Mining Equation(BME),Cigarette Box Optimizer (CBO), or Macro Grid Optimizer (MGO) on one hand and the impact of subjective or objective time based estimations of risks and profits as in the case of subjective Payback Period or realistic Net Present Value (NPV) or Internal Rate of Return (IRR).

All these factors above mentioned are useful to approach the fiscal essence of MSD giving some possible ideas .

In a general perspective, the natural taxation policy takes into account a distinction between a “predetermined” and a “determinant” fiscal revenue category inspired by classic Ricardian or Hotelling rents, some fundamental concepts(mineral propriety and project management),related to a main objective(raising mineral revenues atractivity) through some fiscal and regulation stimulus(adopting a progressive, regressive or neutral fiscal attitude; promoting international fiscal competition to attract technology, expertise and investments; possibilities to contract renegotiations or to stimulate the pace of mining working and regularity tax paying(ring-fencing);simplicity, stability and predictability of tax administration.

The specific fiscal framework of the MSD is related to the factors above mentioned, in terms of geological, legal, and managerial terms taking into account :

-mineral externalities on the supply chain (first extraction tax, intermediary material tax, and material intensity consumption tax);

-mineral right problems a comparison between the concessionary royalty/tax system, the production sharing agreements or the fee contractual systems)

- the fiscal risk problem of ex ante and ex post discount rates impact on future allocation of production factor sand configuration of fiscal system(a comparison between effective fiscal rate of the present raising of company income with its marginal distortionary value due to the fiscal system as well as the political preferences and not the market realities that leads the mineral tax policies).

At this stage,mineral tax policy has principles, objectives and instruments that conduct to obtaining mineral revenues, systematic organized in the form of so called Saving Reserve Funds or Hedging Stabilization Funds, necessary to resolve some pressing present problems(external debt payment).

That leads us to the qualitative approach of MSD problems related to the Resource Curse problem.

Generally speaking, the resource curse is related to so called Paradox of Plenty related to the idea that mineral revenues or other “easy” taxes from other types of “extractive” industries like agricultural production, foreign aid, remittances, or international borrowing are the most reliable source for sustainable development. But in this case the simple natural resource power advantage is a necessary but not a sufficient condition for economic development because it appears that many countries with large endowments of different types of resources(natural economic or institutional) have performed worse than those with smaller endowments—quite the opposite.

Apparently this is a curse a bad destiny situation.

Taking into account the literature of curse resource and its relationship with economic sustainable development we can illustrate the following aspects:

-the booming economic sector explanations from the so called linkage theory to the case of Dutch Disease and its consequence-deindustrialization effect- weakening in quantity, structure, spatial and time dimensions the human working force education as well as financial markets instruments;

-the institutional and psychological explanations to explain the consequences of public government overconfidence in easy mineral revenues(weakening the social contract with citizens due to a “stronger partnership” with investors, leading to a risk of possible soft or hard dictatorship to promote a social values system based on corruption and not on honest and intelligent business, working and living.

Due to the multiplicity of economic, psychological and institutional factors the resource curse problem cannot be directly or in a definitive approach.

Briefly speaking, one possibility could be to take into account the relationship between three very known types of analysis:

-the basics of MSD perspective on sustainable development to illustrate the differences between the ex post liberal policy management of Dutch Disease externalities and legal property rights regulations versus the ex-ante conservative policy management based on fixed autarchic rules like fiscal discipline and political transparency in the so called “Washington Consensus Treaty” values ;

-the philosophical and psychological explanations of natural resources analysis to emphasize the importance of Aristotle Reason Perspective(the matter that is seeking a concrete organized shape to became a visible reality subordinated to a final efficient objective),the influence of Platonism Intelligible Perspective (as an idea of Good and Beautifulness for Nature that comes from a Superior Sensible World of Ideas),as well as the Psychological Energy Center Perspective(the relationship between the human character-that endogenous energy center of intelligence, sensibility and metaphysic faith externality analysis – and its exogenous visible face of personality acting in an adaptive world of social conformism rules);

- the Christian religious problem of Absolute Good and Bad, to avoid the so called Manichaeism trap- the fact that Matter is an Evil, a Curse for the salvation of human spirit, as in the thinking of Roman philosopher Augustine in his book "On the Nature of Good- Against the Manichaeism".

He stated the importance of intelligible perception but also the fact that nature is not a curse because on one hand is created with reason and love from nothing (creatio ex nihilo) by the Trinitarian Christian God, but also because the human person is also a God creation gifted with intelligence, sensibility and conscience, human qualities that in course of time worsened.

Augustine encouraged the free choosing exercise in the sense of consideration of two Polis (States)- the Human Polis and the Heavenly Polis, to encourage step by step the Christian healthy optimism in the process of material and spiritual development, "to give to the Caesar what belongs to the Caesar and to the God what belongs to the God"(Jesus Christ),because "this rock is not cursed but is an angel that is waiting for me to present him"(Michelangelo), but also because "the great ideas win not because they are easy but because they are hard"(John F. Kennedy).

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TAXATION OF ACTIVITIES WITH ENVIRONMENTAL IMPACT

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Abstract

The study has as starting point the need to stringent of taking position to establish financial responsibility for the environmental damages. Taxation of the activities with environmental impact is one of the tools used for achieving environmental objectives. Therefore necessity of balancing between the pressing need of environmental protection and the pressures engendered of the socio-economic need, the means by which this tool can be used as efficiently represents a particularly complex problem. It requires addressing the issues that in view the opportunity of using tax instruments absolutely necessary to be able to change the model of activities with environmental impact.

Keywords: environmental taxes, activities with environmental impact, tax instruments, difficulties.

JEL classification: Q 50, Q56.

1. Introduction

At present, the environmental policy faces some major changes which can be found in its objectives and priorities, but also in the number of its tools of implementation: legislative, technical and economic-financial, plus the set of ”helping tools”, which correspond to the new tendencies and strategies of protecting the environment.

The legislative environmental pack of the E.U. is recognized as being one of the most powerful in the world; it functions when it is applied and performed properly so that our environment would look completely different in its absence.

The environmental taxes and charges within the European Unique Market represent a way of promoting the use of fiscal tools in order to increase the efficiency of the environmental policy.

The incomes from these taxes and charges are added to the budgets of the states members and they can be used to finance the activities of protecting the environment, but also to reduce other taxes (working taxes). In this context, the strategy of the E.U. consists in:

- ✓ analysis and comparison of the experiences of the states members of the E.U. regarding the environmental taxes;
- ✓ knowledge and analysis of the economic and environmental effects of the taxes and charges that exist in the E.U.;
- ✓ monitoring these on the European Unique market and on the European competition, in order to appreciate the efficiency of these fiscal tools.

Even if the tax offers advantages for the society on the whole, this is not as advantageous for each individual polluter, so we can explain the behaviour that is sometimes hostile regarding them. In the conditions of the presence of constradictions between the collective welfare and the private interest, it is imposed that the tax should be a means of solving this litigation in the collective benefit.

In order to determine a tax we need to have knowledge regarding the taxable subject. On the one hand, there is pollution easy to follow, and when the measurement is difficult/ expensive it is required the taxing of products that give birth to these emissions.

Starting from the reality that the damages caused to the environment appear under the shape of external expenses – differences between the private expense and the social expense of the activities developed – there appears the necessity of covering them, or in other words operating the internalization of externalities, by making the payments of the external expenses by the polluters through taxes.

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In order to allow the acceptance of a tax, a certain number of conditions are required:

- ✓the progressive adaptation, without coercion, of the economic agents that pollute depending on the percentage of the tax (we exclude the substances with a high level of harmfulness);
- ✓the acceptance of residual pollution for which they pay a tax (less for the polluters that are required to be forbidden);
- ✓the more correct and faster update of the results obtained with the help of taxes.

The introduction of the tax needs an adequate informing of all the pollutant agents, as a certitude of the understanding of its need; at the same time with elaborating the environmental policy, it is required to be known the life cycle of the products, the possible techniques of production and the existing interchangeable products, the sources of emitting pollution, as well as the existing techniques to eliminate emissions and scraps. On the other hand, as we have already mentioned, as a consequence of the divergences appeared between economic agents, *the application of environmental taxes* involves major problems:

- ✓institutional baulks – need a stronger involvment from the authorized public institutions which, very often, are unable to put into practice the environmental taxes with the help of which the situation could be solved;
- ✓the opposition of private economic agents who identify the environmental tax as an attempt to supplement their expenses and a minus for international competition;
- ✓the lack of trust in the efficiency of taxes, as a consequence of a certain uncertainty over the results (taxing certain products – chemical products, fertilizers – a possible effect would be the reduction of their intensive use, but another side effect would be the support of an extensive agriculture, with major negative consequences: deforestation, using some marginal lands with forests in the conditions in which the farmers will not benefit of a indemnification for protecting the environment);
- ✓the identification of the environmental tax as a possibility of buying the “polluting right”.

The institution of a technique of fighting pollution requires investments and a reorganisation of production, it needs planning and reaction time.

Implicitly, it is possible to make a scheduled evolution of taxes under the shape of some known progressive growth, on a long term, but there are also taxes that cannot be announced (pollutants with irreversible effects, accumulations that are slowly reabsorbed into the environment).

We must also take into account the fact that the effects of the taxes come into prominence after some time after they have been introduced; it is required a reglementation or even some legal measures that would ban some dangerous substances, when they want a fast reaction from the economic agents.

Therefore, there appears the need that the fiscal tools should be predictable, as stable as possible, to allow to all those involved to dispose of investments in their fight against polluting the environment, the environmental taxes should come into prominence through a real transparency and a simple applicability into practice.

The environmental tax may determine, on the one hand, the growth of the price of the resources at their real cost (including the cost on terms of pollution, affecting people’s health and so on) and on the other hand, they are also a way of collecting in an organised manner the resources that are necessary to financing some projects that aim at fighting against the harmful effects of human activities on the environment. We can state, without being wrong, that it is required the implementation and abidance of some effective policies of protecting the evironment, which are dependent on the existence of a correct fiscality in the field of environment.

2. Taxing the activities that have an impact on the environment

Energy sources, especially fuels have recorded a constant growth of their price in the last few years. On the one hand, we consider the evolution of the main raw materials (petrol, coal and so on) and on the other hand, the cost of these resources is determined in a high measure by the quantum of the taxes applied to finite products, so that the source of these increases is given by the evolution of the taxes applied to these products (which are called environmental taxes).

The policies of taxing the activities with an impact on the environment represent, together with the Instruments Based on Market, one of the most effective tools through which the contemporary states may cause changes in the way of using and developing resources.

Taxing the activities with an impact on the environment includes taxes and compulsory payments towards the central government imposed to a taxing basis with a great relevance for the environment; they fit into the class – Instruments Based on Market (IBM) and they represent a powerful tool of transforming the pattern of using resources at a national level. The definition is used by the international organisations such as: The International Agency for Energy and the European Commission.

The existence of a concrete definition which includes the environmental taxes is difficult from various reasons: many of these taxes were created and imposed from different reasons others than those linked to the environment, and the beneficiaries of the incomes generated by these taxes are not always preoccupied by the environmental reasons; on the other hand, the level of some taxes was established without taking into consideration the effects on the environment caused by certain changes.

As a consequence, the modification of the definition on the type of activity that determines a certain fiscal obligation may have undesirable effects when the effects from an evironmental point of view are neglected. In exchange, the exclusion from the definition of the taxes imposed, without an argumentation that would be linked to the protection of the environment or the taxes whose level is not established connected to their impact on the environment, determine the apparition of some quantification problems.

It is a common definition which pertains to the type of taxing basis and not to the utility/purpose of that tool. The most important taxing bases in this field are: the taxes of using resources, energy products, taxes for the storage of scraps, taxing emissions measured or estimated of pollutant gases or with a greenhouse effect, the engines of the vehicles. These do not generate a proportionality between the level of the taxes paid by the economic agent and the benefits that he will take the advantages.

The Value Added Tax (VAT) is not included in this definition. The cause is of the general character of VAT, it is a tax that is imposed (with certain exceptions) to any good and commercial service, generating neutrality from the point of view of the impact on the environment.

There is a large specter, both regarding to what these taxes represent and to the principles that we take into account when we analyse and establish if a tax will or will not be introduced in the category of environmental taxes.

Taxing the activities with an impact on the environment represents one of the tools used in accomplishing the objectives connected to the environment. As a consequence of the need of ensuring a balance between the stringent necessity of protecting the environment and the pression generated by the necessity of a social-economic development, the ways through which this tool can be used as effective as possible represent a very complex issue.

It is imposed the approach of the aspects about the opportunity of using taxing instruments that are absolutely necessary in order to be able to change the pattern of developing the activities with an impact on the environment. In addition, there must be displayed the arguments that support the use of environmental taxes combined with other tools based on market (IBMs) such as: pollution shares and licences (certificates), the incentives and subsidies intended for supporting certain activities, the diagrams of responsability and compensation for activities with a higher degree of risk for the environment (researching and implementing technologies to change the consumers' habits), the tariffs for different environmental services (the collection and storage of household wastes). We have to mention and analyse rigorously, as a conclusion of what we have mentioned above, the main political obstacles met during the implementation of IBMs, inclusding the arguments that are contrary the efforts of increasing the quantum of some existing taxes / introducting new environmental taxes.

The use of a certain combination of instruments based on market must obtain a good assessment of the real proce of a resource; an important part of polluting and exhausting natural resources is determined by the underestimation of the real price of a good/service that we consume. In order to ensure the accomplishment, both of the environmental objectives and of the economic and social-political objectives, we use instruments based on market (taxes, tariffs or licences) that take into consideration the hidden expenses of the production and consumption of some goods/services, considering, on the one hand, people's health and on the other hand, the impact on the environment.

According to the European Environmental Agency, we identify:

- The environmental taxes created to modify the behaviour of the economic agents (they aim at changing the price of some resources), but also to increase the budgetary incomes;

- The environmental tariffs, in order to cover partially/totally the costs of the environmental services and of treating;

- Subsidies and incentives – their purpose is to stimulate the apparition and development of some new markets with goods and services connected to the environment: new technologies, changing the consumers' behaviour by supporting the aquisition of goods with a low impact on the environment, as well as to support the enterprises so that they could reach a high level of protecting the environment;

- The diagrams of guarantee and compensation were created in order to ensure an appropriate level of compensation for the damages caused by some activities with a high degree of risk on the environment;

- The certificates (licences) that can be transacted – the purpose of reducing pollution (for example emissions of CO_2) or the reduction of the intensity of the use of some resources (for example fishing share) by giving some economic incentives for commerce.

We can use, in a combination: the environmental taxes and the other IBMs together with other instruments of public policies (reglementations regarding the minimum standards, prohibitions for certain substances/technologies, reglementations regarding the minimum standards).

Hereinafter, to support ehat we have stated, we present a study which reflects the possibility of using a mix of instruments which would create a positive impact.

Table 1

Mix of instruments used to ensure a positive impact

	Ways of combining the tools used
1.	*The labelling system* may generate *the growth of the efficiency of the environmental taxes*
2.	*Subsidies* for different projects *combined with using the taxes on energy*.
3.	*The application of an environmental tax and a voluntary approach* may have as a result a growth of the acceptability of the environmental taxes, as well as the reduction of the impact of these taxes on sector competition
4.	*The application of an environmental tax and a system of licences that can be transacted* – the result may consist in a reduction of the expenses of respecting the rules by the companies, as these are interested in the effective functioning of the system; such a combination may raise the problem regarding the efficiency of the taxes imposed to the activities with an impact on the environment.

Source: OECD

✓ensures relevant information for the users – certain features of the product with an impact over the environment (for example: the system of classifying the home appliances depending on their energetic efficiency A-G);

✓*for example: subsidies* for projects of insulation of buildings *combined with using the taxes on energy* may represent a positive solution which ensures the creation of some different incentives for the owners and tenanats of buildings; combination which may represent the basis for the growth of investments for the thermal insulation of buildings;

✓*for example: the negotiated environmental agreement*

There are various possible combination in approaching the problems regarding the environment.

Another level of analysis and decision requires to apply these solution taking into consideration a series of characteristics: the country/region-specific, the specific of each industry, the type of pollution and so on.

3. Conclusions

There are numerous opponents and it is required to take into consideration the process of thinking and implementing the tools*, "Understanding the sources of opposition regarding the proposals of implementing new environmental taxes/ of growing the level of the existing ones represents a major condition in order to ensure the successfully implementation of such measures."*

Using taxes as instruments of modifying economic and social behavior related to the environment faces difficulties, being accompanied by arguments such as:

a. the impact of environmental taxes on the economic competition at an international level

Creating and implementing taxing instruments that would generate possible modifications of the incentives for pollutants face important obstacles both at a national and at an international level; there are taken into consideration the expected negative effects that these taxes could have on the level of competition of some fields/economies at an international level.

In practice, the companies, the fields/countries with high environmental standards have not recorded decreases of the level of competition; by taking some measures at a regional or glabal level, we can make sure that no country is more or less affected compared to other countries.

A measure adopted determined that the states members would be imposed with legal obligations of measuring and limiting the emissions of greehouse effect gases (at the same time with implementing the Protocol from Kyoto). At the level of the E.U., this system was completed by ETS, through which the pollution licences can be transacted at an interstate level (2005); the effects of this system will be felt only on a medium term. According to a study of OECD, " differentiation is in fact based upon the availability of companies to be opened at the signals transmitted by the imposition of some taxes, the subsidies that are given or the opportunities that are linked to the diagrams of transacting the pollution licences; this opening should allow the implementation of some investment plan that would limit the negative impact of the companies' activities on the environment".

b.the impact of environmental taxes on social inequality and distribution of incomes

The distributive effects of different environmental taxes represent a very important point. According to some recent studies, the environmental taxes, especially the taxes on energy are characterised by a regressive impact on the distribution of incomes. The introduction of some taxes for electricity consumption, water, storing and processing scraps determines the growth of fiscal burden at the level of the individual/family; in many countries, this fact represented an important argument to introduce differenced prices. Another approach is the maintaining of unsubsidized prices at the same time with offering some help or reduced rates for the families characterised by a minimum standard of living. We have to underline the fact that it is required that these measures should be operated through the system of social insurances, so as the incentives system would function well and the possibilities of abuse would be limited.

We face with an extended range of rules, reglementations, financial instruments, institutional structures which form into a barrier in implementing, on a larger scale, the environmental taxes, according to the data provided by the European Agency of Environment.

Some consider that the taxes should be high in order to be effective, a fact which would destabilize the strategical approach on a long term; at the moment of the implementation, low levels are required in order not to generate a major impact; after that, these taxes increase gradually, taking into account the capacity of adaptation of the economic agents' behaviour.

Others take into consideration the potential conflict between maintaining a high level of incomes and changing the behaviour of those aimed at; the authorities highlight the danger of decreasing the incomes cashed as a consequence of the implementation of a tax reform, even if we face the same situation but just on a short term.

There are conceptions linked to certain reglementations, which limit the area of implementing some reforms in the system of taxes and subsidies; motivated from an economic/social point of view, the subsidies from certain fields: energetic (for example: the fossil fuels), agriculture (payments for productions and reduced excises for diesel), transport (allocation tax for commuters) that allowed that the price paid by the population would be a low one if compared to their incomes. These subsidies may generate a positive effect for that activity, but at the same time they underlie some structural inefficacy in using resources, with a negative effect on the environment. According to the study that we made, we can state, without being wrong that the environmental taxes take shape in a very complex field, on the one hand because of the multiple types of taxes that are in this domain, on the other hand because of using the taxes in combination with other IBMs, and due to the social, economic and political connotations of the reforms from this field.

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ENVIRONMENTAL TAXES: POLLUTION/RESOURCES. ROMANIA'S SITUATION AS COMPARED WITH EU MEMBER STATES

Georgiana CHIŢIGA[91]

Abstract

The environmental taxes are a relevant area in the future fiscality taxes in the European Union. These are aimed, not only the protection of the environment around us, a sustainable economy, but also the meant to bring funds to the EU budget. At present, the current system has the advantage of ensure the stable and sufficient resources.

The study aims the evolution of the revenues from environmental taxes: pollution/resources and these are collected to finance projects which are destinated to limit the effects of the human activities upon the environment.

Keywords: environmental taxes, pollution/resources taxes, evolutions.

JEL classification: Q 50, Q56.

1. Introduction

As the aspects of protecting the environment have become compulsory reasons, a transition has been made from the approach based on coercion and sanction to the approach based on incentives, which is more flexible, with the purpose of promoting the accountability towards the environment.

The environmental taxes are a relevant field in the future fiscality from the European Union and they have as a purpose not only the protection. However, we should not elide the rigidity or better said the abstention that we have to face when they consider that the environmental objectives coerce the industrial competition and the economic growth.

Nowadays, the present system has the advantage of ensuring enough stable resources, having an equivalent impact on the payers from all the European Union, respecting thus the horizontal equity, but it also has a lot of disadvantages – lack of transparency and limited connections with the politics of the European Union. If we should consider this system a viable solution for us, we should also consider it an issue of political option. There is no simple solution, the environmental taxes represent a very complex problem.

There appeared the stringent need of a common approach at an European level.

As the environmental problems are linked to externalities, their existence determines the economic agents to make decisions which are optional from a social point of view. The state, having as an objective the optimal allocation of resources, has the possibility of imposing taxes (the presence of negative externalities) or it can give appropriate subventions in order in internalize the externalities.

According to the Eurostat methodology, the environmental taxes are separated into four groups:

✓energy taxes;
✓transport taxes(excl. fuel);
✓pollution/resources taxes;
✓transport fuel taxes.

a. The energy taxes – the taxes on energetic products used for transport (petrol, diesel), as well as for supplying the stationary machines (natural gases, coal and electric power); according to Eurostat, the taxes on the emission of CO_2 are rather included in the energy taxes than in the pollution/resources taxes – this situation is determined by the fact that it is not possible to identify the separate application of taxes on emissions of CO_2, because these are a part of the energy taxes; also, the incomes obtained from energy taxes are much higher compared to the ones from pollution/resources taxes.

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b. The transport taxes are, mainly, the taxes related to the ownership and using of vehicles; the taxes specific to other equipments of transport, the related services of transport are included in this category when they are in accordance with the general definition of the environmental taxes.

The transport taxes may be taxes referring to imports or sales of equipments or recurrent taxes (the annual road tax); the name of this tax category may mislead us, as the most important part – the taxes on petrol, diesel are included in the energy taxes, according to Eurostat.

c. The pollution/resources taxes apply to the emissions from mobile and immobile sources, when marketing some goods(plastic and carton wrappers, plastic bags, dangerous chemical substances, batteries and so on), as well as when exploiting some natural resources (wood, aggregations), others than those used as energy sources.

d. The transport fuel taxes– are the latest introduced in the Eurostat methodology, they are not included in the transport taxes.

2.The pollution/resources taxes. Romania compared with EU member states

We will extend the analysis on the evolution of collections from pollution taxes and those of using the resources. The figures of the income budgets (2005-2013) show a low collecting capacity compared to the potential basis of taxing, despite recording some progress in what regards the overall volume of encashment (the cause – tax evasion).

This situation is even more serious as the pollution/resources taxes are those taxes collected in order to finance projects intended for limiting the effects of human activities on the environment, which proves a serious unconcern; immediate solutions are required in order to increase the degree of collecting these revenues. In addition, according to the way of collecting the statistical data, the main source of pollution, that is the emissions of CO_2, is quantified at the category of energy taxes.

The pollution/resources taxes represent one of the groups of environmental taxes, those that become revenues for the Environmental Fund Administration. The establishment (2005) wanted to create that economic-financial tool with the role to support and to allow the accomplishment of projects for protecting the environment, in accordance with the legal effectual disposals in the field of environmental protection. However, Romania did not have the possibility to respect the duty of insurance for the projects financed from the Structural Funds of a co-financing of over one billion Euro per year with the help of this tool, because the creation of the Environmental Fund Administration required an important institutional effort, the financing of the fund was specified to made only from the country's own incomes; our country assumed its contribution with a co-financing of 15 billion Euro – for the period 2007-2018, and the Environmental Fund Administration has annual revenues that are less than 37% from the necessary sum per year. In addition, the same situation is presented by the Eurostat data (in the period 2002-2013), recording a decrease of the total encashments related to this group. (Figure 1, Figure 2, Table 1).

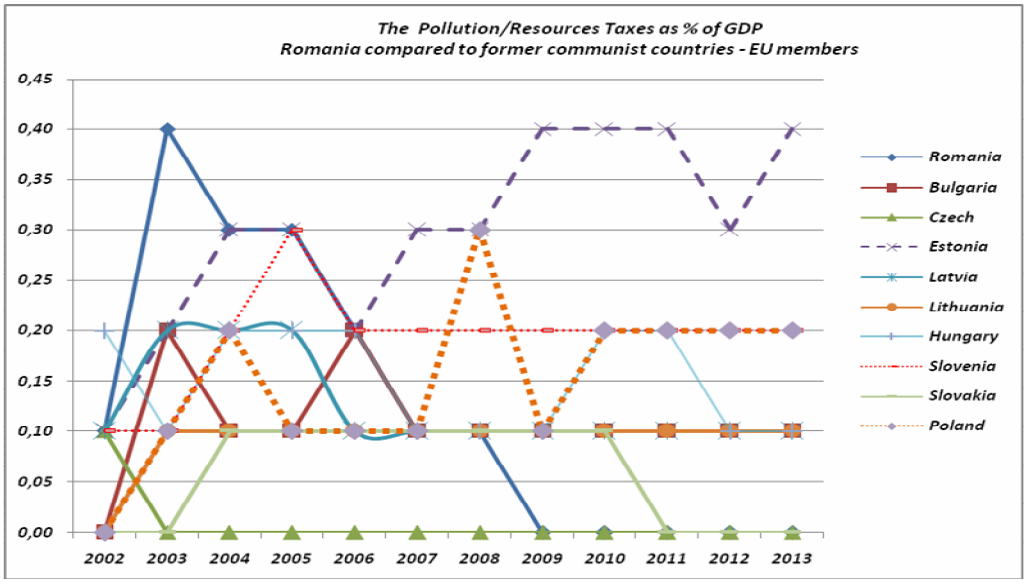

Figure 1. The evolution of pollution/resources taxes.
Romania compared to former communist countries, EU members. (as % of GDP).
Source: data processed by the author

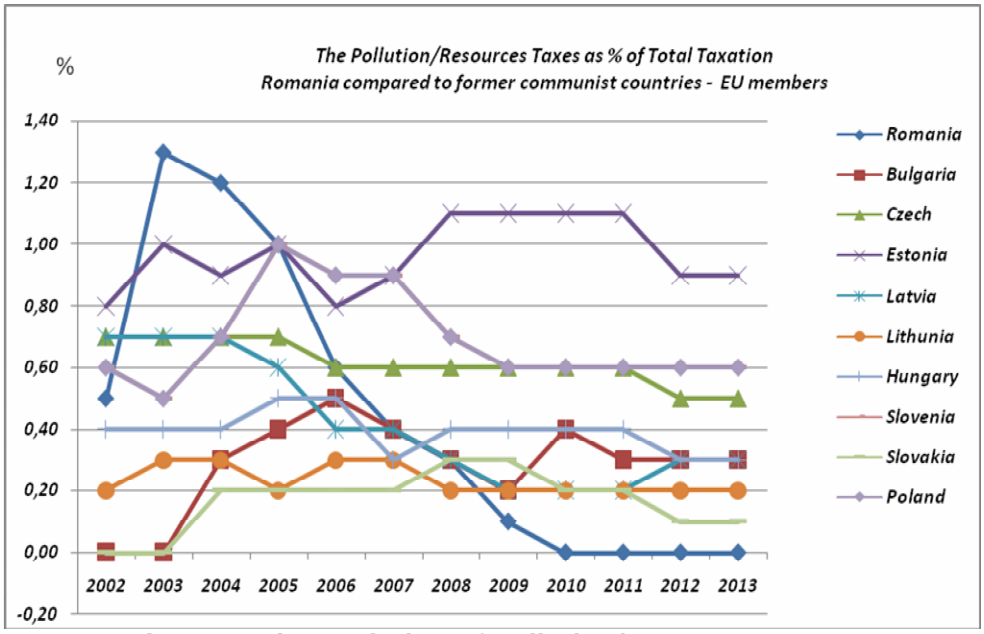

Figure 2. The evolution of pollution/resources taxes.
Romania compared to former communist countries, EU members. (as % of Total Taxation).
Source: data processed by the author

Table 1

Revenues-Pollution/Resources Taxes in the member countries of the EU– 27 (including Norway and Iceland)

- mil.euro -

Nr. crt	Member Countries EU-27	Revenues - 2011
1.	Belgium	516
2.	Bulgaria	35
3.	Czech Republic	46
4.	Denmark	554
5.	Germany	1430
6.	Estonia	49
7.	Ireland	364
8.	Greece	-
9.	Spain	235
10.	France	2278
11.	Italy	486
12.	Cyprus	-
13.	Latvia	16
14.	Lithuania	16
15.	Luxembourg	4
16.	Hungary	95
17.	Malta	9
18.	Netherlands	4328
19.	Austria	63
20.	Poland	775
21.	Portugal	7
22.	Romania	12
23.	Slovenia	83
24.	Slovakia	24
25.	Finland	131
26.	Sweden	144
27.	United Kingdom	1615
EU-27		
	Norway	-
	Iceland	42
		Total 13316

Source: Eurostat, 2013

In 2007, Romania collected a total record of 16 billions Euro from these taxes, being the beneficiary of the 21st rank among the states members of the EU, while after that the encashments dropped to 12 billions Euro, which caused the occupancy of the 23rd rank by our country.

Extending the analysis over the other three groups of taxes, the situation remains within similar parameters. (Table 2)

Table 2

The environmental taxes* as % of GDP in România.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Environmental taxes:	2.4	2.1	2.4	2.4	2.0	1.9	2.1	1.8	1.9	2.0	1.9
Energy	1.9	1.7	2.0	2.1	1.8	1.7	1.7	1.4	1.6	1.8	1.7
Transport fuel	-	-	-	-	-	-	1.3	1.3	1.6	1.6	1.4
Transport (excl.fuel)	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.2	0.2

Source: Eurostat, Commision Services, Report 2013; *the environmental taxes: according to the Eurostat methodology, both pollution/resources taxes – Figure 1, Figure 2

According to the mentioned data, in the year 2011, Romania was situated in the lower part of the list of the EU – 27 as % of GDP from the energy taxes, which put it on the 19th rank; as % of GDP from the transport taxes – 23th rank, as % of GDP from the transport fuel taxes – 17th rank; on the whole, the environmental taxes as percentage from GDP, put our country of the 23rd position.

Romania disposes of limited capacities of collecting the revenues stipulated by law; however, the revenues projected to be collected from the environment fund have constantly increased. Nevertheless, reported to Romania's GDP, the sums stipulated to be obtained at the Environmental Fund represent just 0,36% from the GDP, in the best year from its history.

The economic crisis left its print too; in practice, the encashments from pollution taxes were really small, so the real available revenues for programmes of protecting the surrounding environment place us among the last ranks in Europe.

3.Conclusions

The situation proves that without a major change in the fiscal strategy of this field, our country will still remain on an inferior position related to the efforts of protecting the surrounding environment. It is imposed the support of the gradual growth of the environmental taxes, as well as the introduction of some new tools used in different countries of the European Union.

The capacity of Romania to accomplish its obligations in the field of environmental protection – the Environmental Fund Administration represent a real progress in the field of supporting the financing of the programmes of preventing the impact of human activities on the surrounding environment; the effete collection of the revenues intended for the Environmental Fund influence this aspect in a negative way. There appears the stringent necessity of some discussions regarding the way in which the institutions of the state that have to collect the taxes for the EFA (AFM) can be determined to accomplish their legal obligations with a higher degree of efficiency.

As a consequence, both of the existence of the powerful budgetary crisis developed in the last years, and the recommendations of the EU to modify the importance given to taxing work (Romania records a high fiscality) to a more highlighted taxing of consumption and pollution, the ensurance of increasing the collections from environmental taxes should represent a priority for Romania.

We notice that the number of environemental taxes is very high in the majority of the states members of the EU and there is also a strong opposition towards the tendency of increasing these taxes.

The environmental taxes have had an important role in the context of the crisis, still considering that their increase would create the possibility of reducing the taxes on working force, this way stimulating employment and improving the quality of the environment. In the period 2000 – 2013 there are modifications in the composition of the environmental taxes at the level of the EU.

There is no ideal tax, all the potential taxes have both pros and cons, a fact which does not involve giving up to their application and use. Major difficulties may appear in the way in which a tax can be

defined and the fact that it will need the unanimous approval from the states that are members and interstate harmonization.

In the future, the financing system of the European Union will definitely be a political decision.

A wrong approach could determine unfavourable and unexpected consequences in what regards the efficiency of the fiscal politics and strategies of the environment from the European Union.

Most of the countries have to face with the lack of an appropriate coordination at a horizontal level between different institutions, so as to be conceived in a strategical manner different policies, according to the European Environment Agency.

The EU is working on a more integrated approach of the processes of elaborating policies, which would base on the principle of assessing the impact and of a better reglementation; including recommendations for improving the participation in managing the interactions between science, technology and society.

After the analyses that we made, we reached the awareness of the fact human activities may generate irreversible changes on the environment, the exhaustion of non-renewable resources and the deterioration of some essential bio-systems. At the same time, mankind has become more and more aware of the fact that there are necessary some supported efforts in order to generate some radical changes in the way in which economic activities and thought and put into practice, so that the welfare of the contemporary society should not be achieved with the price of losing the possibilities of a better living in the future.

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PARTICULARITIES OF TRANSFER CHANNEL IN THE FINANCIAL NETWORK MODELING

Mihail DIMITRIU[92]

Abstract

As is known network model is based on the defining element: the transfer channel. The most research in this area focused on what is transferred (flows of material, financial, energy, information) between two nodes in the network and less on “technical support” transfer – transfer channel. It seeks to propose an analytical model of channel transfer taking into account the types of transfer flows and nodes that are connected. Our proposals we believe can contribute to a better identification of financial networks and for solving practical problems in the modelling type can’t provide a solution (network bottlenecks, transfer between different networks, a network relationship with the environment and so on).

Keywords: transfer channel, network modelling, financial network

JEL classification: C45, C58

1. Instead of introduction. Network versus system

It is known that in the past decade we have witnessed a number of changes in all spheres of social and economic life that constantly put into question the known values, hierarchies, organizational form.

The combined impact of changing trends carrier (transition from centralization to decentralization, decentralization of decision-making, the emergence of interactive technologies, an unprecedented level of globalization, etc.) have resulted in reducing the influence hierarchies, systems, reducing bureaucracy, blurring Authority inability decision-making structures to solve the fundamental problems of society.

The functioning of societies, economies prove unproductive, being gradually substituted with the Community model, the mutual assistance, managerial economics is replaced by entrepreneurial economy.

Interaction men went to another level, prioritized groups began to interact in otherwise appropriate new technologies, and organisation authoritarian system has gradually turned into a networked organization, claiming that each network entity (institution, company, individual) to do their duty to fulfil obligations to others.

At the same time, targeting only individual to "career" is proving inadequate in dealing with change, "multiple qualifications" and increased opportunities to choose an adequate amount of information, provide flexibility and strength, versatility and permanence both for individuals and for society.

The new model towards which society (or network) brings together people and self-help is the symbol of the new organizational paradigm, reducing frustration and inertia, failure and depersonalization.

Globalization requires knowledge of "democratization" information network, networks spread featuring an authentic approach to the problems facing humanity, promoting networks that hierarchies can’t provide specific horizontal connections.

From a structural viewpoint, the specific network type model is that each node, cell, individual is at the centre of each is important, equipotential, the strength and flexibility of the network. In the network diversity and differences are concentric, but these approaches and equalize Network members are equal partners, cooperating and integrating continuously.

2. Specificity financial network

If we look only from a financial perspective, there is an apparent specificity financial network, about the particularities of flows, nodes and transfer channels.

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In this respect, the basic elements are:

a. Financial nodes may be of a different nature, but their essence is the same, being that generate, holding and carrying forms of currency, banking or not[93]. They can be individuals, productive firms, banks, etc. State examples are considered at different levels of aggregation, grouping them can be achieved but homogeneously by different criteria;

b. Activation financial network elements (tools) make the interaction between entities, i.e. their mutual influence, which can be considered, in fact, supports tangible or intangible forms of currency, resulting in the paper currency, bonds, checks, deposits, treasury bills, etc. Their role in the network is dependent entities, leading, in turn, the nature of entities as constituents.

c. Operations to interconnect entities by transforming procedural tools so they can achieve financial role activation space, the transaction constitutes an active element transition from one state to another, such operations can be considered dual active or liabilities, income and expenditure, and functional, of regulatory, executive, guarantee, etc. The role of operations is that they generate interconnect constituents, resulting consistency and coherence within the network.

d. Interconnections are links between the constituent links reciprocal interdependence, which is a transfer of information that can be transferred to a real space, gaining consistency, say substantial. Interconnection is achieved by channel transmission, transfer, including transfer and technology, languages and codes, development nodes and configurations (linear, sequential, focused, concerted etc.), transfer vehicles, assembly and supply of information, etc.

e. Interactions are characteristic elements of the network, which may give network identity, autonomy and reproducibility; nodes are recognized as part of a network is supported vendors and recipients of information targeted value instruments carried by the network. Interactions are embodied in financial shape flows that influence both the issuing node and on the receiver. Interactive two-way flow is directed, that any transfer of an instrument, a form of monetary support, requires a transfer in reverse of another instrument at the same time or staggered, often multiplying valuable information[94].

f. Identifiers allow financial flow definition, delimitation, differentiation and discrimination flows depending on the significance of these identifiers can be highlighted as follows:

- Content flow composition, often depending on the nature of the instrument and its characteristics, such as liquidity, maturity, etc., highlighting the nature and content flow;

- Sources and recipients of flow, where the flow interactively specific financial network, representing nodes that are simultaneously the source-destination, the interdependence of the bank, for example, receiving a stream of cash, receivables and are therefore receiving and transmitting a financial assets flow saving nature and are therefore a source, scriptural money and saving money are the two forms of two-way currency transferred by the specific instrument warehouse;

- Relevance flow, that its significance for partners that can be circumstantial relevance or strategic, depending on preferences, needs, tools, etc., beyond the subjective appearance of this determinant, consistency depends on the form of money, its value, the tool flow transferred by the size of its value, so that regardless of circumstantial factors, the relevance of debt flows differs from that of the flow of claims.

g. Quantifiers financial channel provides interactive sizing and determination of flow parameters can and should be transfer channel, allowing adequate interconnection network according to their relevance determinative. We can highlight the following quantifiers:

- Transfer bandwidth is its formative feature, which gives flow embodiment, depending on flow identifiers, and the environment in which the flow "flow" capacity varies depending on factors often uncontrollable, a stream of cash payments being saving a different stream or financial investment;

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[93] In the entity (node) transformations occurring substance, energy, information, which means that a node belongs simultaneously to a variety of specialized networks (financial ones being only one species)

[94] Financial network is composed of bi-univocal flows of money instrumental form flow network representing specificity determinants and flow characteristics influencing network quality

- Transfer channel length, depending on the source and destination identifiers, and the transfer circuit understood that the sequence of the segments carrying a flow of the use of the forms of monetary flows with the same source with different uses of such payments or investment leading to a transfer channel with different lengths;

- Transfer speed of flow is considered very important feature, especially given computer networking technologies, the opposite of which is latency, and a characteristic derived as the difference, lag;

- Duration of flow, depending on the length and speed, but also favourable or adverse potentialities flow;

- Transfer channel reliability, which is likely to make the correct transfer and long financial instruments, according to the specific determinants and characteristics.

3. Place and role of transfer channel

Obviously, the financial network approach involves a more open, a more complex financial space.

At the entity level, we consider the existence of a system operating on systems theory (as decision-making, information system, logistics system, etc.). But what happens when you go to the "micro"? The input and output of a system we have two sets: the set of inputs and outputs lot, and one or more feed backs.

But output lot should have a purpose by transforming the inputs to the system and inputs should be set outputs from other systems.

This transformation of inputs into outputs and vice versa is done according to the network model by using transfer channels between entities (nodes). Purpose of this communication is to precisely identify features channel transfer financial networks.

A first observation concerns the specificity of financial flows within the network. Although we have a variety of entities connected by channels of transfer, we believe that the link between two nodes is as a=f(b), namely perceived financial flow at the entrance of an entity in a transfer channel has a single sender (and only one), another node in the same financial network.

Cash flow uniqueness does not imply the existence of a single transfer channel. There may be financial transfers on the same channel transfer, but at different times, with pairs of different transceiver nodes with different amplitude and frequency of financial flows.

As a result, the transfer channel should possess first "sensors" to identify the transmitter and receiver of a certain cash flow, "sensors" which, according to a certain signal attached financial flow, guiding financial transfer from a particular transmitter to a specific receptor.

Also transfer channel should be sized so that it can provide a certain type of cash flow (cash payments, savings, investment, etc.) of a certain magnitude and a certain frequency. This feature can be called a transfer channel capacity is given by:

- The set of nodes transmitters and receivers (represented by the set of "sensors")

- Frequency of financial transfers between pairs of nodes transmitter - receiver

- Maximum flow transferred

- Operating costs for the transfer channel

Different situations occur when concrete financial networks, such as a financial shock, a financial jam, a node disappears while a transfer is made to or from this node etc. and channel transfer must react, so financial network fully functioning.

For this transfer channel must be controlled to operate in the designed parameters. The question is who controls the transfer channel, because a model of networked nodes only reminds transfer channels. In this sense, in our view, participatory mode of action of entities in financial networks implies that to them and the role of design, implementation and control of transfer channels.

In this regard, we believe that creating a channel transfer should be made transmitter node, because it has a direct interest in the "exploitation" of its outputs. Also, financial flows should be harmonized with other types of flows (materials, information, and energy) and search one or more recipients 'financial' should take account of the existing or potential flows. A role he has control of

financial flows and the receiver node, because any financial input it must be consistent with certain "parameters" set (a transmitter node prior contract, for example).

Information in any network monetary transfer channel will be given some abstract properties that contribute significantly to the induction of network reliability, namely:

- The existence of information concerning the suitability unspoiled money in the future (it involves a transfer channel does not produce changes in financial flows);

- The existence of information on the use of contractual relations laundering;

- The existence of information on the behaviour and expectations of the entities and subjects.

Information determines the unitary financial network, establishing a climate of trust within the network environment needed its reproduction.

In addition to these properties abstract financial transfer channels in the network should have a number of characteristics, among which we have identified the following:

- Representativeness, its reflective feature, highlighting the appropriateness, the correlation between interactions made by the transfer channel and the real needs of the economic, social, cultural, financial network is not directly engaged in making explicit purpose of economic activity, namely, obtaining gain; representativeness gives channel transfer feasibility and reproducibility, the latter being an intrinsic attribute of the interaction, a representative channel transfer functions conditional assertion currency, and the proper interactivity between constituents monetary financial instruments;

- The effectiveness of channel transfer highlights quality to achieve the aims in concrete situations considered promptly and at minimal cost, i.e., the ability to be interactive in terms of reasonableness, of rationality based on trust, effective transfer of currency while assuming maintaining monetary value of financial instruments;

- Velocity channel transfer speed transfer instruments, financial assets in the transfer channel, which depends on the flow rate of each feature and the degree of interconnection flows of their interactivity, favoured the existence of defining elements complexity of the network, obviously depending on the duration and velocity flows involved reliability, transfer of technologies used, and the feasibility of the overall network architecture;

- Intensity transfer channel, which is expressed dual loading and diversity of instruments, forms of currency transferred by specific flows, as a potential feature of the channel transfer intensity is enhanced by increased reliability and complexity, and the inverse relationship with its extensively;

- Institutively of channel transfer characteristic is functional, its formative, meaning assignment to a set of institutional rules, structure and functional relationship, which establishes the operating rules, protocols and specifications within a defined architecture, configured and composed, forming a network with specific attributes.

4. Conclusions

A closer analysis of financial networks reveals a multitude of issues that a network model is not entirely surprising. One of these issues relates to the specificity of transfer channel for financial networks.

Along with general attributes attached channel transfer financial networks are a series of specific characteristics such as representativeness; effectiveness; velocity; intensity; institutively.

Failure to transfer channel characteristics can lead to the emergence of risks in the operation of the transfer channel, but also the whole financial network.

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STATIONARITY, STABILITY AND SUSTAINABILITY IN THE ECONOMIC PROCESS

Emil DINGA[95]

Abstract

The paper has as basic objective to revisit, in an unitary way, the three notions regarding the economic process dynamics: stationarity, stability, and sustainability. This analysis will be performed from three points of view: 1) conceptually; 2) methodologically; 3) instrumentally (including quantifications). The paper will try to discern both the differences and the similarities among the three concepts, in order to extract the practical possibilities to use them in designing and piloting the macroeconomic processes. Some formalisms will be also delivered and argued, based on the accepted definitions of the concepts involved.

Keywords: stability, stationarity, sustainability, dynamics mix

JEL Classification: B41, E32, E63

The economic policies are primarily interested for sustainability of the economic systems, since this concept takes into consideration the long term and, in a significant degree, the self-stabilizing and re-stabilizing of these systems. The paper will discuss the stationary, stable and sustainable systems (especially the economic such systems), in order to formulate the general conditions of the sustainable economic systems, so of the public adjustments policies aimed to generate and maintain these sustainability conditions. Figure 1 suggests the general scheme of the discussion.

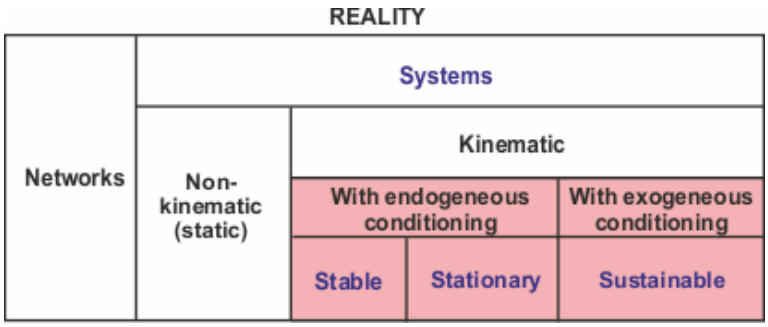

Figure 1. Ontological categories of the reality

1. Economic stationarity

1.1. Preamble

By stationarity[96] of a system we understand the property according to the system's output is a deterministic[97] function of its input, and its state, respectively. Let's describe a system as a set of elements having at least a common property, e_q, with $q = \overline{1,s}$ and let's note also: a) the system's states at the time t with s_p^t, where $p = \overline{1,w}$; b) the system's input (from the system's environment) at the time t with x_i^t, where $i = \overline{1,m}$,; c) the system's output at the time t with y_j^t, where $j = \overline{1,n}$. We shall accept that the system's output can be written as: $Y^t = h(X^t, S^t)$, where $X^t = (x_1^t, x_2^t, \dots, x_m^t)'$, $Y^t = (y_1^t, y_2^t, \dots, y_n^t)'$ and $S^t(s_1^t, s_2^t, \dots, s_w^t)'$. Since any inputs will generate (via S^t) a strictly causal

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[96] The concept o stationarity, used here, is larger than the concept of stationarity used in mathematics (or in mathematical physiscs, and in quantum mechanics) where it refers the fact that a solution of a differential equation (that describes a kinematics) is not depending from the variable of time.

[97] By determinism we understand o dynamical causality. The dynamical causality is the causality homogeneously recorded for every individual of an observed class of objects, i.e., describeable through the same mathematical function for every individual. By the contrary, we could have a statistical causality, recorded as such only for the class of objects, but not for every individual of the class. It is very polemically if we can "legally" discuss about determinism in the case of the statistical causality.

determined output and since this happens certainly and exactly for any input[98] and any time, we can say we have a stationary system.

By their definitions, the concept of "stationary system" and the concept of "predictable system" are mutually substitutable (they are completely equivalent, because they have the same denotation). But, why a predictable system should be considered as being a stationary system? Our answer is the following: the non-stationarity of a system measures the surprise degree which its dynamics could exhibit for the observer (or analyst, or policy decision maker). Since a predicable system offers a null degree of surprise (any input will generate, in a necessary way, a determined output), then we obtain that a predictable system is equivalent with a stationary one. Here we are far away from the "civil" signification of the concept of stationarity that refers rather the property of a system of maintaining its parameters (of state, and of output, respectively) at quantifiable levels (or relatively constant). In our opinion, such last systems must be named as static not stationary[99]. Consequently, the formal condition for the stationarity of a system is that the analytical expression of the function h be a constant for different moment of times for the time horizon implied (either from a scientific interest, or for a practice interest). Since the system state is modified following the impact of the inputs on the system, and taking into consideration that the system state is equivalent with its structure[100], we expect the analytical expression of the function h be modified over the time. So, we need to discuss about the system stationarity on the time horizon where the analytical expression of the function h remains invariable. In other words, we can also accept a "stairs" stationarity (figure 2).

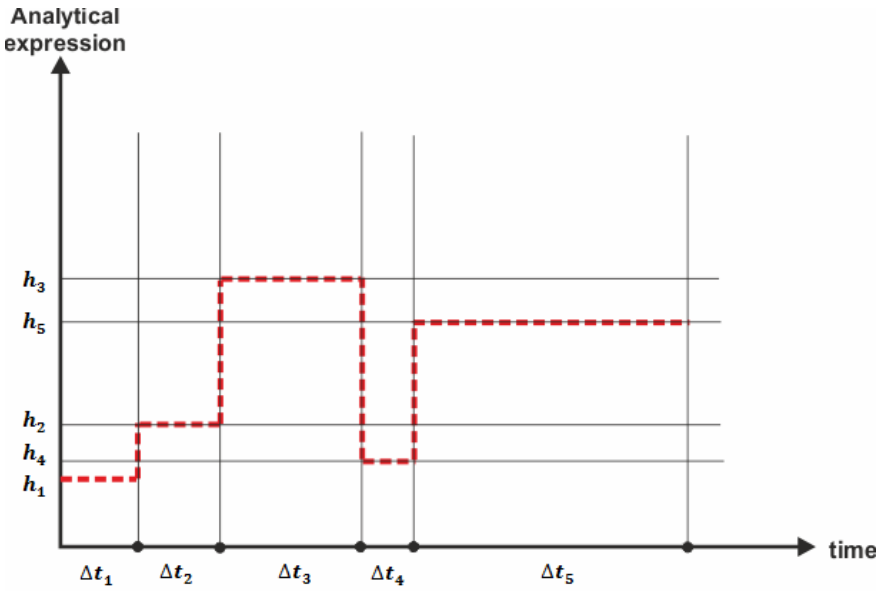

Figure 2. The "stairs" stationarity of a system

1.2. The concept of economic stationarity

We assume an economic system is a system characterized by a state vector, an input vector, and an output vector. In this case, by an stationary economic system we understand a property of such

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[98] As precautionary measure we shall consider, of course, that $x^t \in \mathcal{M}^t(x)$, where with $\mathcal{M}^t(x)$ is noted the set of admissible inputs, at the moment t, for the system in case.

[99] In fact, the distinction between the static systems and the stationary systems is much more radical: the stationary systems are species of the kinematic systems (i.e., with evolution depending from the time), while the static systems are systems that do not suffer changes over time. Although this clarification is of a great methodological support, it is required to still say that today are known only two catgeories of systems verifying this features of the static systems: a) the system of Divinity (the Divinity is considered by definition as being immutable); b) the system of the entire Univers that get its thermic equilibrium (according to the second law of thermodynamics).

[100] The state parameters of a system can be considered as being "allocated", biunivocally, to the elements of thye system, as their properties. Even if this "allocation" could take more complex forms, by violating the mentioned biunivocity, the conclusion that the structure of the system can be altered by the inputs (i.e., can modify the analytical expression of the function h) is still held.

a system so the output vector is a deterministic function from the input vector and the state vector. We can describe an economic system as a set of elements which hold at least a common property, e_q, with $q = \overline{1,s}$. Let's also note: a) the states of the system at the moment t with s_p^t, where $p = \overline{1,w}$; b) inputs into the system at the moment t with x_i^t, where $i = \overline{1,m}$; c) outputs from the system at the moment t with y_j^t, where $j = \overline{1,n}$. We shall accept that the output is a function depending from the input and the state : $Y^t = h(X^t, S^t)$. To be additionally noted that: 1) even if the inputs, and outputs, respectivelly, are vectors, the deterministic causality is conserved, so we do not enter the statistical causality; 2) the equivalence between the "predictable system" and the "stationary system" is held also in the economic system case. Other some mentiones have to be made: a) the states of the real economy refers the "technological recipes" by which the goods and services are produced, on the one hand, and the "normative recipes" which governes the production of goods ande services[101], on the other hand; b) the states of the financial economy refers the financial flows, based on specific technological coefficients of types: prices, wages/salaries, taxes, etc., which help to calculate the level of this coefficients needed by the real economy as counter-part to the real economic flows; c) the states of the nominal economy refers the technological coefficients of types: inflation, interest rates, exchange rates, etc. which help to calculate the money needed by the financial economy as counter-part for the financial economic flows.

1.3. The concept of real economy stationarity

Inside the economic systems, the causality plays through the economic flows, which generate the inputs and the outputs of the considered system. The economic flows are of three categories: real economic flows, financial economic flows, and nominal economic flows. The *real economic flows* refer the goods and services of merchandise type (i.e., pass through the market). The *financial economic flows* refer the monetary flows which act only as counter-parts for the real economic flows. The *nominal economic flows* refer the monetary flows which act only as counter-parts for the financial economic flows. Based on these definitions, we can define the real economy as representing the segment of the economic activity that correlates the real economic flows with the financial economic flows, and the nominal economy as representing the segment of the economic activity that correlates the financial economic flows with the nominal economic flows[102] (figure 3).

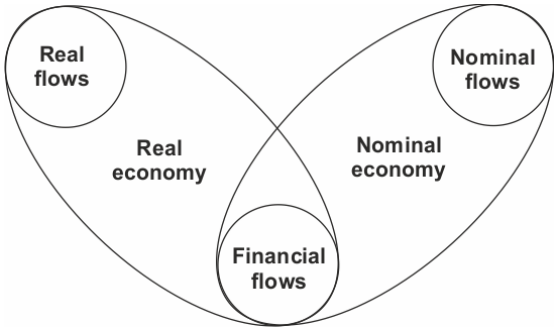

Figura 3. The real and the nominal economy

By stationarity of the real economywe shall understand the stationarity associated to the binominal *real flows – financial flows* in the figure 3. We shall introduce some supplementary notations, for the graph in figure 4 describing the real economy: $x(r)$ is the input into the real economic flows system; $y(r) = h_r(x(r), S_r)$ is the output from the real economic flows system; $x(f)$ is the input into the

[101] Although the norms, in their most general sense, could be considered also as inputs, we would prefer to include them into the concept of state (so, as parameters characterizing the system components) based on the following reasons: 1) they do not enter any economic cycle, but once only, so, for the most economic cycles they are "there" when the proper inputs enter the system, acting as state parameters; 2) they are not "consumed" in the economic cycle of the system in case, but rather act as conditions for the consuming the inputs.

[102] So, the financial economy is only an intermediate term between the real and the nominal economies.

financial economic flows system[103]; $y(f) = h_f(x(f), S_f)$ is the output from the financial economic flows system (Figure 4).

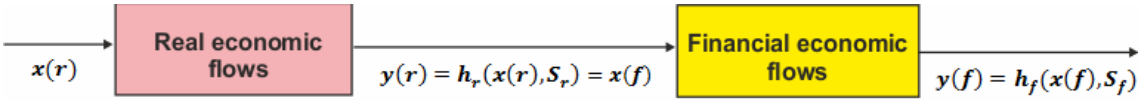

Figure 4. Functioning of the real economy

So, the stationarity of the economy implies the following condition: the analytical expression of the composed function: $y(f) = h_f(x(f), S_f) = h_f((h_r(x(r), S_r), S_f)$ is invariant on the horizon of time of interest (either theoretical, or practical).

1.4. The concept of nominal economic stationarity

By stationarity of the nominal economy we shall understand the stationarity of the binomial *financial flows – nominal flows* in figure 3. Analogously with the real economy case, in figure 5 is described the nominal economy functioning:

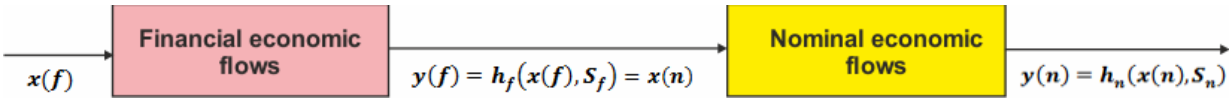

Figura 5. Functioning of the nominal economy

According to the definition above mentioned, we shall say that, in the case of the nominal economy, the stationarity condition is: $y(n) = h_n(x(n), S_n) = h_n((h_f(x(f), S_f), S_n)$ must have an invariant analytical expression on the horizon time of interest (either theoretical, or practical).

1.1.1.5. The concept integrated economic stationarity

By the concept of integrated economy we shall understand the trinomial real flows – financial flows – nominal flows, so the reunion between the real economy and the nominal economy. A graphical image of the concept of integrated economy is shown in figure 6.

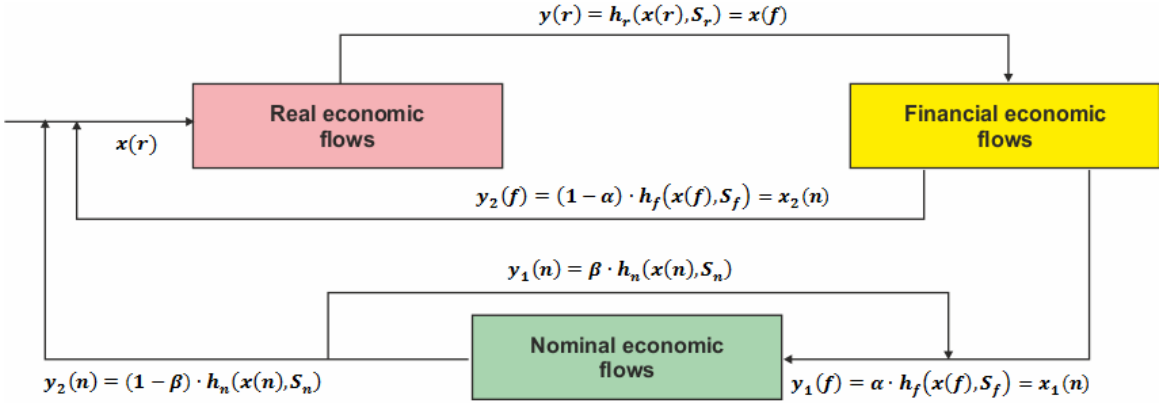
y(r) = h_r(x(r), S_r) = x(f)
x(r)
Real economic flows
Financial economic flows
y_2(f) = (1 − α) · h_f(x(f), S_f) = x_2(n)
y_1(n) = β · h_n(x(n), S_n)
Nominal economic flows
y_2(n) = (1 − β) · h_n(x(n), S_n)
y_1(f) = α · h_f(x(f), S_f) = x_1(n)

Figure 6. Functioning of the integrated economy

where $\alpha, \beta \in \mathbb{R}$, and $0 \leq \alpha, \beta \leq 1$.

2. The economic stability

2.1. The concept of stability

Based on the concept of stationarity of a system, we can now introduce the concept of stability of the systems. Essentially, by stability we shall understand also an invariance. This invariance is not absolute (of stationary type) but relative (of dynamic type). More exactly, we shall say a system is stable if its outputs are predictable, not in a punctual way (like in the stationarity case) but in an

[103] To be mentioned that, based on the definition of the financial economic flows – as monetary contre-parts to the real economic flows – we have: $y(r) \equiv x(f)$.

interval one[104]. This means the analytical expression of the behavioral function of the system (the outputs as function of inputs and states) maintains its invariance for a given (expected) interval of time. One can now say that the stable systems are predictable not regarding its output per se, but regarding the parameters of the transformation function. It is, somehow, a predictability of second (or indirect) order (see the figure 7).

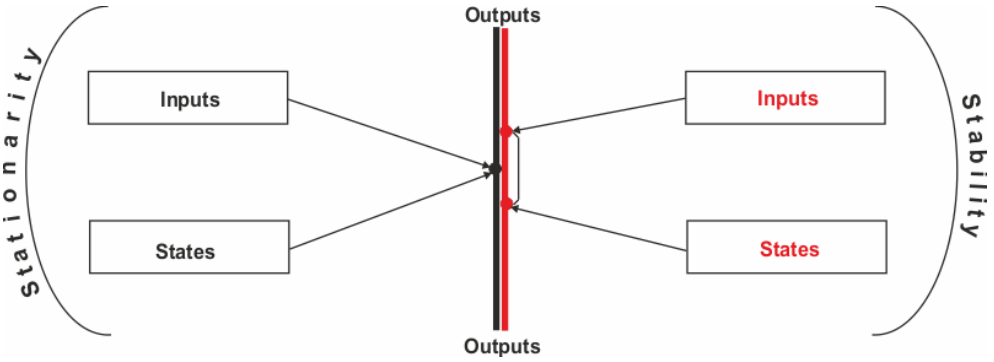

Figure 7. The distinction stationarity - stability

It is obviously that the fundamental issue here is of the variability of the transformation function parameters. How exactly are we ensured regarding the maintaining of this variability inside an acceptable (expected) interval? We shall deliver some considerations:

a. the variation of the transformation function parameters is an objective that emerges in a non-normative way (for example, the relation of complementarity or of substitutability among the production factors could modify itself based on inputs or outputs variation only);

b. the variation of the transformation function is predictable (for example, knowing the analytical expression of the transformation function allows to the observer/analyst to determine quantitatively the possible changes of the coefficients regarding the complementarity, substitutability, marginality, elasticity, etc.);

c. the predictability of the transformation function is not punctual, but of the interval type[105]; if this predictability is presumed to be punctual, then we could acquire the punctual predictability of the output itself, so we could get the stationarity: indeed, if a punctual prediction for the transformation function parameters is possible, then we have simply a new transformation function, with variables and parameters univocally determined, so we have a punctual predictability of the output, so we a have stationarity;

d. if the parameters values of the explanatory variables in the transformation function get out from the established intervals, then the system becomes un-stable.

2.2. The concept of the economic stability

Let's recall the abstract description of an economic system: a set of component elements sharing at least a common property, e_q, with $q = \overline{1,s}$, as: a) the system states at the moment t, s_p^t, where $p = \overline{1,w}$; b) the system inputs (from the system environment), at the moment t, x_i^t, where $i = \overline{1,m}$; c) the system outputs at the moment t, y_j^t, where $j = \overline{1,n}$; d) the transformation function h so $Y^t = h(\varepsilon_k^t, X^t, S^t)$, where: $Y^t = (y_1^t, y_2^t, \dots, y_n^t)'$, $X^t = (x_1^t, x_2^t, \dots, x_m^t)'$, $S^t = (s_1^t, s_2^t, \dots, s_w^t)'$, and ε_k^t stay for the transformation function parameters at the moment t ($k = \overline{1,g}$). So, the input, output, state vector as well as the analytical expression of the transformation function remain invariant on the time horizon of interest, only the numerical values of the transformation function parameters are changing. Moreover, this change allows maintaining of the output inside the established interval (as

[104] Here an important mention must be made: in the case of stationarity, the output varies, of course, when the input and/or the state vary, but this variation is completely delivered by the invariant analytical expression of the transformation function, so it is predictable. In the case of stability, we have a certain modification of the analytical expression of the transformation function, at the parameters level (so, not at the causal variables level, that remain the same), preserving its analytical invariance, but inside the established interval.

[105] Here a fuzzy approach could be of usefulness. For the moment, we are interested to only postulate this vaqueness, but not to measure it.

the figure 7 indicates). Now, an extremely important mention must be put, namely the variation of the transformation function parameters is non-normative, it emerges simply by the economic system functioning itself. Conceptually, we have an endogenous variation that is self-limitative, generated by the inputs and outputs vectors features, as well as by the analytical expression of the transformation function (the technological "grid").

As result, we can write: $h_{t_1}\left(\varepsilon_k^{t_1}, X^{t_1}, S^{t_1}\right)$, respectively $h_{t_2}\left(\varepsilon_k^{t_2}, X^{t_2}, S^{t_2}\right)$. The stability condition could be formalized as: $|\Delta h| = \left|h_{t_2} - h_{t_1}\right| \leq \lambda$, with $\lambda > 0$ fixed. So, we have to verify: $\left|\varepsilon_k^{t_2} - \varepsilon_k^{t_1}\right| \leq \delta_k$, with $\delta_k > 0$ and $k = \overline{1,g}$ or, as vectors: $\begin{pmatrix} \left|\varepsilon_1^{t_2} - \varepsilon_1^{t_1}\right| \\ \left|\varepsilon_2^{t_2} - \varepsilon_2^{t_1}\right| \\ \dots \\ \left|\varepsilon_g^{t_2} - \varepsilon_g^{t_1}\right| \end{pmatrix} \leq \begin{pmatrix} \delta_1 \\ \delta_2 \\ \dots \\ \delta_g \end{pmatrix}$

Obviously, the political decision maker establishes only the threshold λ, since the thresholds δ_k could be get by calculus, once we have the analytical expression of the transformation function. Must be mentioned, however, this way the numerical sets for the transformation function parameters are not unique for a given value of λ. Nevertheless, the number of such sets, for every value of λ, is finite and, very probable, small, since the analytical expression of the transformation function (presumed reflecting the functional aspects of the explanatory variables[106]) is strongly restrictive.

3. The economic sustainability

3.1. The concept of sustainability

The concept of sustainability passes beyond the existence and functioning of an isolated system. Some considerations are of usefulness: a) about the sustainability we cannot discuss than inside the systems "endowed" with cultural subjects[107]; b) the cultural subjects concomitantly hold three hypostases in the system: 1) cognitive/observational subject; 2) praxiological/actional subject; 3) praxiological object.

In order to clarify the concept of sustainability it is needed to be said that it is not the same with the concept of durability: the durable systems do not contain cultural subjects, although they could contain, of course, subjects. So, although in the common language (even more, in many cases, in the speciality language) the terms durable and sustainable are semantically equivalent, we shall made here the difference between them, from the structural point of view (based on the presence or not of the cultural subjects inside the system in case). More exactly, we consider we face here not a simple terms confusion, but we have properly two different concepts, so two different referents.

We have seen, before, that both the stationary systems and the stable systems are capable of autonomous functioning. By autonomous functioning we understand a functioning that exclusively needs inputs variables, state variables, and transformation function. The state variables must be of two kinds: a) state *functional* variables: the state variables (the technological "grid" based on which the inputs become outputs) of endogenous nature that define the autonomous personality of the system[108], having a persistent, even inertial, feature; b) state *normative* variables: the state variables (teleological "grid" of the system) of, generally, exogenous nature and that have not a persistent feature, being of a non-inertial type. These normative variables give, in fact, the

[106] For example, the variation interval of the complementary or substitutability of the inputs is relatively small. In addition, the structure of the economic system (packed in its state vector) imposes, on its turn, some constraints on the parameters variability inside the transformation function.

[107] The cultural subjects are the subjects capable of conscience (so, of grasping the alterity or, that is the same, of the himself of herself, in mirror with the environment). Or, in other words, the cultural subjects are the subjects capable of representation (the non-cultural subjects are capable of perceptions only). The distinction between the representation and the perception is the following: while the perception needs the perceived object being in actu in front of the subject, the representation needs not the actuality of the represented object.

[108] A system always is only its persistent structure says us it is.

difference between the stationary or stable systems, on the one hand, and the sustainable systems, on the other hand. Shortly, the sustainable systems are those stationary or stable systems that contain channels of receiving normative state variables (see the figure 8).

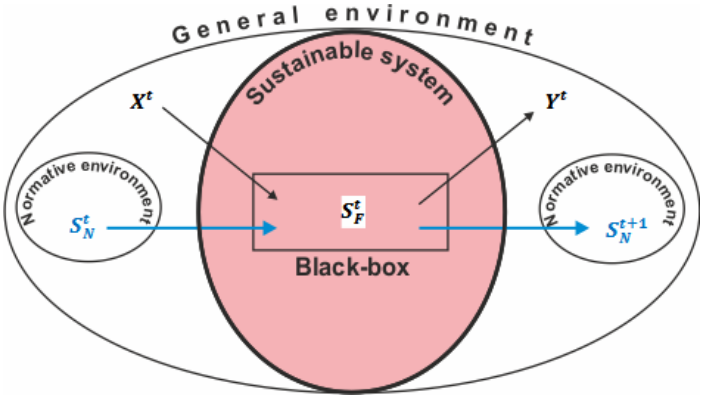

Figure 8. The normative state vector in the sustainable systems

3.2. The concept of economic sustainability

In our opinion, the economic systems cannot be evaluated than as sustainable (or, of course, un-sustainable) systems, so only in the paradigm of sustainability. Of course, this does not mean any economic system is sustainable, but only that any economic system has normative variables coming in from its environment. Maybe a more precise sentence could be here: any economic system is possible to get the sustainability, or that any economic system is a normative system[109]. This means that the normative state variables can or cannot be adequate to provide effectively the sustainable character of the economic system in case: if they are adequate, then the sustainable character is provided, and if they are not adequate, then the sustainable character is failed.

3.3. The relation stationarity – stability – sustainability

Putting together the three concepts discussed above, we can show that the stationarity implies a kinematics towards a point, the stability implies a kinematics inside a one-dimensional interval, and the sustainability implies a kinematics inside a bi-dimensional[110] interval (area), as the figure 9 shows.

[109] In fact, we can say any social system is a normative one.

[110] The expressions “one-dimensional interval” and “bi-dimensional interval”, respectively have not a geometric signification, but an algebric one: in the case of stability, a there is a single degree of liberty (the parameters that change), and in the case of sustainability thare are two degree of liberty (the parameters, and the system state because the normative considerations).

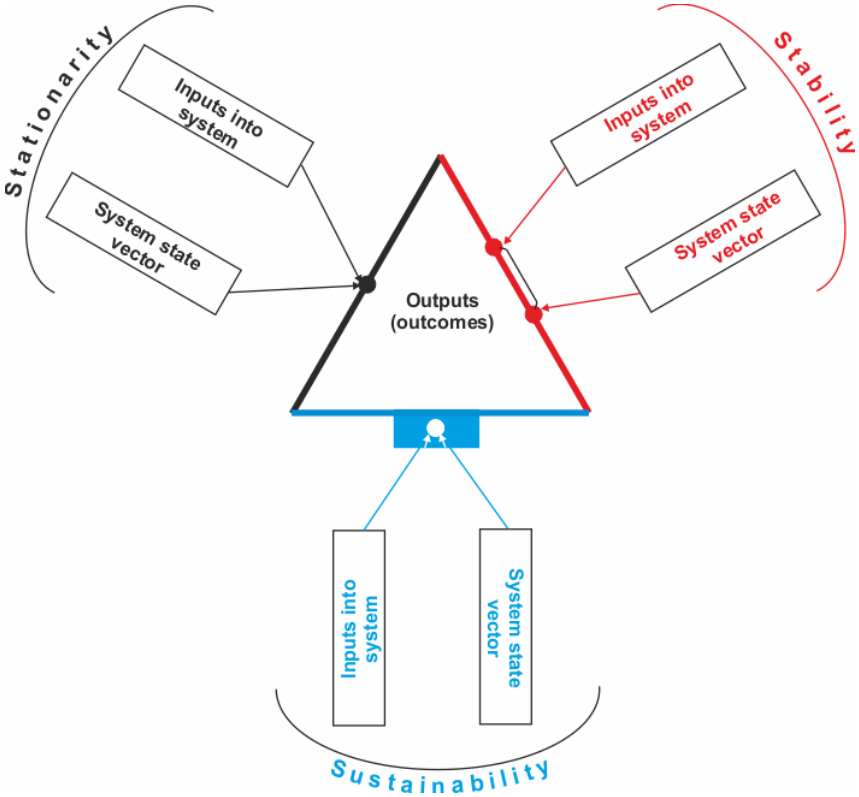

Figure 9. The general distinction among stationarity, stability, and sustainability

A kinematic sinoptic of the general relation among stationarity, stabaility, and sustainability could be captured as in the figure 10.

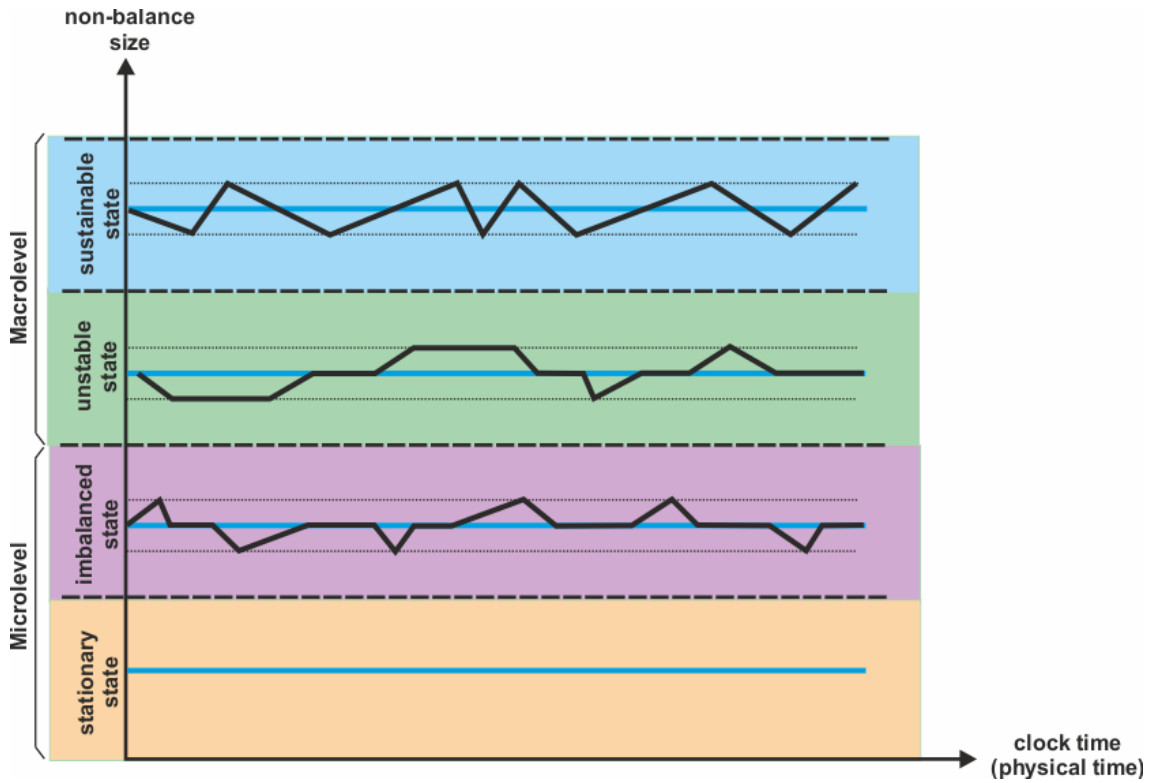

Figure 10. The kinematic distinction among stationarity, stability, and sustainability

THEORETICAL AND METHODOLOGICAL APPROACHES ON THE EVALUATION OF BUSINESS INCUBATORS

Mariana DOGA-MÎRZAC[111]

Elvira NAVAL[112]

Abstract

The experience of developed countries on business incubators reveal that these establishments enable the entrepreneurs to focus on business development, job creation, and help foster interactions between entrepreneurs in a dynamic and innovative environment, which ultimately leads to the creation of small and medium sustainable entreprises.

The incubator's intensity and successful promotion of viable businesses depends on their level of development and quality. Therefore, for the evaluation of business incubators it is required to use certain indicators in order to detect factors that hinder their effectiveness. The success of a business incubator is its value to the economic environment and the ability to react quickly to changing external conditions.

Keywords: business incubator, evaluation of business incubators, incubation process, selection criteria, evaluation indicators.

JEL classification: M00- General, L30 – General, L31 - Nonprofit Institutions;

Introduction

The business incubators (BI) is an instrument for the indirect financial support mechanism for the entrepreneurship within the small and medium business, which at the final stage of incubation process will obtain the status of a successful enterprise and will contribute to supporting the new entrepreneurs who are at the stage of incubation in working effectively.

The experience of developed countries on business incubators reveal that through these incubators entrepreneurs can focus on business development and grounding concept, create new jobs, ensure interaction between different entrepreneurs in a dynamic and innovative environment, leading to creation of viable small and medium enterprises.

It is important to note that the business incubator is a specific institution within the market infrastructure, which on one hand, supports the domestic developing enterprises, and on the other hand, they fit the state requirements in supporting the start-ups, use of innovative technologies, and provide several amenities etc.

The positive influence of business incubators on a state economy is indirect, through regional development, strengthening the economic situation in disadvantaged areas, improving local business.

The business Incubator is one of the most efficient political instruments for an economic restructuring, the transition to a new technical base within the current conditions of high unemployment.

The success of a business incubator represents its value for the economic environment and the ability to quickly react to changing external conditions.

Description of the problem

The intensity and effectiveness of business incubators depend on their level of development and operation quality by promoting sustainable business. Therefore, for the evaluation of business incubators it is required the use of certain indicators and detection of factors that hinder their effective work.

It is necessary to consider the technical capacities of business incubators in determining their capability and criteria identification (indicators) in order to assess the results of business incubators.

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Methodology and data sources

There are just few research papers on financial and economic activity of business incubators. The best practices can be found in developed countries such as USA, Germany and Britain, countries where the concept of the Business Incubator was born, along with their activity.

From the reviewed literature we have selected effective methods of analysis of the results of the activity Business Incubator use of certain indicators:

- to assess the situation in the whole of the distribution the Business Incubator in a specific region,

- to calculate and analyze detailed productivity and efficiency,

- to assess the activity of a business incubator, are using qualitative and quantitative indicators,

- to assess the effectiveness and development the Business Incubator we can use and full index method

Obtained results

Table 1 shows data on incubators density distribution in the regions of Moldova. It is calculated as the ratio of the number of incubators and incubated enterprises. From the data table we can mention that the best result on the density distribution of business incubators it is in the Central Region.

After an analysis made on the distribution density of the number of economic agents operating in incubators within some EU countries that have surpassed the Moldova results, we have found the ratios for Austria (1:3), Germany (1:6) Finland (1:7), Luxembourg (1:9) and France (1:11).

So we can conclude that the number of business incubators as a support system for small and medium business are not distributed uniformly on Moldovan territory, and are inadequate. [2]

Table 1

The density distribution of economic agents working in incubators

Region	Number of business incubators	Number of economic agents	Ratio / Density
1	2	3	4=2:4
North Region	3	51	1:17
Central Region	4	34	1:9
South Region	2	32	1:16
Total	**9**	**117**	**1:13**

Source: developed and calculated by the author

There are various theoretical and practical approaches to use certain indicators to calculate and analyze in detail the productivity and efficiency of incubators.
In order to select (develop) a set of indicators, it is necessary to consider not only the static activity, but also the changes in dynamic efficiency of business incubators at local and regional levels.
Indicators selection (development) is based on the following requirements:
- general assessment of the business incubator (considering all possible outcomes obtained from the business incubator activity);

- simplicity and representativeness of the used indicators (indicators should reflect in details the analysed phenomenon and should be easily used in calculations);

- avoid duplication of indicators (evaluation system must be balanced using the set of selected indicators);

- possibility to use indicators in practice based on available information sources (statistical activity, reports, interviews, surveys).

In selecting the evaluation indicators it should be taken into account the benefit to the local community and the efficiency with which financial and human resources have been used to achieve goals. [,p.16]

The indicators used in the calculation and analysis of BI productivity and efficiency can be divided into two groups according to the source for obtaining statistical data:

- indicators from secondary data (objective data source - statistical (official) data of state organizations)
- indicators from primary data (subjective data source - data from surveys, interviews, surveys of personnel working in BI or SMEs (both incubated and non-incubated))

Further, in the table, there will be presented the indicators divided into two groups.

Table 2

Indicatorii de evaluare a eficienţei activităţii incubatoarelor de afaceri

A. Indicators from secondary data (objective data source)

Assessment parameters	Indicators	Calculation method
Development quality of small enterprises in BI	Number of incubated SME per capita	total number of enterprises in BI / population
	Share of incubated SMEs in total number of enterprises	total number of enterprises in BI / total number of enterprises
	Revenue from sales of incubated SMEs per employee	income from sales of incubated SMEs / average number of persons employed in SMEs
	Average value of income from sales per incubated SME	income from sales of incubated SMEs / total number of enterprises in BI
	Average income tax per incubated SME	income tax of incubated SMEs / total number of enterprises in BI
	Atractiveness of incubated SME	average monthly salary in incubated SMEs / average wage in the economy
Efficiency of financial resources	Financial support for SMEs in the BI from state budget sources	amount allocated from state budget or (and) local budget
	Financial support for SMEs in the BI from alternative sources	amount allocated by investors, from programs, projects, business angels, crowdfunding, venture capital
Efficiency of human resources	Average number of employees in incubated SME	number of employees in incubated SMEs / total number of enterprises in BI
	Number of incubated SME per employee	number of incubated SMEs / number of employees in BI

B.Indicators from primary data (subjective data source)

Assessment parameters	Indicators	Calculation method
Business environment within BI	Share of profitable SMEs in BI from total SME	total number of profitable SMEs within BI / total number of enterprises within BI
	Loans for incubated SME from financial institutions	amount of loans granted to incubated SMEs / total number of enterprises within BI
	"Completion" coefficient of SMEs within BI	number of SMEs that have "completed" BI / total number of enterprises within BI
	"Selection" coefficient of SMEs within BI	number of SMEs that have been "selected within BI / total number of enterprises
	Report between the "completed" and "Selected" SMEs	number of SMEs that have "completed" BI / number of SMEs that have been "selected within BI
Efficiency of innovation use	Efficiency of BI	number of start-up companies within BI / total number of enterprises
	Efficiency of innovation in supporting infrastructure	number of innovative enterprises within BI / number of infrastructure objects used in the innovation field
	BI collaboration with the academic environment	number of active academic institutions total number of enterprises
	Share of BI within university units	*total number of BI / number of BI within academic institutions*

Sourse: modified by the author according to [4]

To evaluate the effectiveness of the BI activity and development, we can use the method of integral index, which can be calculated as the geometric mean of indicators showing the status and development of the BI, according to the following formula:

$Ip = \sqrt[n]{\ } i_1 * i_2 * \ldots i_n$ (1)

where:
Ip – performance index of evaluation and development of the Business Incubator;
$i_1, i_2, \ldots, i_n$ – indicators of activity and development of incubated companies during a set period. [3,5]

The discrepancies between the socio-economic environments, where the incubators are set up, make difficult to establish a generally applicable quantitative rule on assessing the success of an incubator. For example, an area of intense business activity will be more favorable for the development of a business than an area with limited economic activity, limited financial and human resources.
The evaluation of a business incubator in terms of implementing active measures to combat unemployment, could be done through a number of qualitative and quantitative indicators. The following criteria must be considered when making a real assessment of the business incubator:

- *results-based criteria (monitoring):* use of surface area (in m2); average number of new jobs created by each incubated SME; number of incubated SMEs; incubated companies' activities; number of new-developed incubated SMEs; grants obtained by each incubated SME; number of SMEs excluded from the business incubator; number of employees of the BI manager; ratio between the number of BI employees / incubated SME; quality of delivered services; number of created spin-offs; number of other created or involved companies; local added value (ex: new created jobs and higher local living standards).
- *economic criteria (impact assessment):* average operational costs; average costs of capital investments; cost per job (gross); failure rate of incubated SMEs after the incubation period; survival rates of SMEs after the incubation period; value of investments in fixed assets / total amount of investments made by incubated companies; amount of foreign investments; average growth in turnover, other economic and financial results; trade and economic partners outside the geographical area [1, p.16].

Also an important step in the analysis of business incubator efficiency, according to the indicators, is to objectively evaluate the results of their activity. This assessment should identify:

- Analisys of BI carried out according to the BI activity plan (forecast).
- Highlight the indicators which do not meet the restricted parameters and identify their cause;
- Highlight the indicators which have not meet the restricted parameters and identify the cause.

In order to accurately identify the most pressing problems in BI activity, the incubator staff and the companies that operate within the incubator should be interviewed.

As the international practice shows, after finishing the incubation cycle of the company and completing it, only 20% of BI continue working with them, without offering any direct or indirect support.

Conclusions

In conclusion we can mention that the main assessment indicators of business incubators efficiency are: the number of incubated companies that have "graduated" BI, the number of new jobs created by the incubated companies and the percentage (number) of incubated enterprises that have survived and are active in business. Howevwr, any of the above methods can be used to assess the activity of business incubators. During its activity, a BI must establish (form) a mechanism that enables a closer collaboration with incubated companies.

As a result of BI activity analysis, there should be an action plan containing measures to balance the created situation (results) oriented towards:

- Increase efficiency and effectiveness of BI
- Increase efficiency of each BI process activity;
- Improve the quality of services in accordance with the consumers requirements;
- Improve the mechanism for creating successful businesses;
- Select and evaluate the factors influencing the BI activity, etc.

The performance of a business incubator must be primarily assessed in terms of results. Thus, the social effect (number of new created jobs) and the economic effect obtained within the region or settlement (number of SMEs in addition to the local situation, before the creating the incubator or a completed cycle of incubation) should be used as key performance indicators.

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ECOLOGICAL RISKS AND ECOLOGICAL RISK MANAGEMENT

Cătălin DRĂGOI[113]

Abstract

In the economic language, we frequently speak about inflation risk, interest rate risk, currency exchange risk, psychological risk, credit risk. Over the last decades, the environmental risk has come to the attention of specialists and managers and has gained an increasing importance. Companies focus their attention on risk management as a key element in ensuring the success of the objectives. Environmental risk management provides a set of formal processes underlying environmental decision-making and supports the decision maker in its efforts to minimize the level of uncertainty.

Keywors: ecological risk; ecological risk management;

JEL Classification: Q50; Q56

Introduction

In the economic language, we frequently speak about inflation risk, interest rate risk, currency exchange risk, psychological risk, credit risk. Over the last decades, the environmental risk has come to the attention of specialists and managers and has gained an increasing importance. Risk can be generated by an event, action or lack of action, its consequences ranging from the beneficial to the catastrophic ones.

In terms of probability, in the real world, events with 100 % probabilities of occurrence do not exist (in other words, p = 1). There are always a number of known and unknown factors that have an effect on the event assumed, so that it is very possible that its finality is completely different than originally expected or estimated. Thus, any activity involves a certain degree of risk, the activities with zero risk, the so-called zero risk myth, being just a prejudice. The risk is determined by the possibility of an event's occurrence that will have a result on certain objectives.

Companies focus their attention on risk management as a key element in ensuring the success of the objectives. The risk is the uncertainty of a result or event, either positive, in the form of an opportunity, or negative, as threats or hazards, which may cause changes during the achievement of the real objective, with positive or negative effects on the expected economic results. Thus, the risk refers to the possibility that an adverse event occur, an event that will change the expected revenue.

Theoretical considerations regarding the environmental risk

The environmental risk results from the human-economy-environment interaction. The environmental risk can be defined as the probable level of damage to the environment or to certain environmental components, on the one hand, and, on the other hand, the damage to assets and human property and economic activities by a natural phenomenon or a group of natural phenomena called environmental events, or by human activities in a certain area and time period.

Risk sources can be both natural and human related. If a natural phenomenon causes damage, it is considered to be a natural accident that can go up to a natural catastrophe, depending on the damage caused, or an anthropogenic risk, when human activities are those that generate negative consequences.

Ecological risk management implies the knowledge of the past evolution of natural, human and industrial systems and the forecast of their future evolution. Risk management consists in identifying and quantifying existing and potential ecological risks that may appear as a result of human activities (e.g. the consequences of a river course improvement works) and minimizing the possibility of occurrence of environmental events and, in case of occurrence, diminishing their negative effects.

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For a series of natural events, the society reduces their effects by dispersing them at the individual or business level with the help of the insurance systems.

The environmental risk can not be considered an isolated event. Given the existing scale production, local events can have regional or global consequences, thus appearing the phenomenon of dispersion or transfer of the risk between different areas.

Between the level of risk and the costs needed to reduce it there is an inversely proportional relationship, namely reducing the risk to a very low level involves high costs, and a zero risk, as shown, can not be reached, since there is always a level of acceptable risk. Environmental risk management must maintain a balance between related costs and expected benefits.

The cost of risk management is the sum of all expenses related to the alleged risks. For the insured risks, the insurance premium is also a cost.

Preventive measures allow for the reduction of risk cost and limit event occurrence and repeating. Provisional measures determine the reduction of consequences, but, in this case, predictable consequences of risk reduction can be avoided, so the cost is high. The transfer of risk effects determines a cost increase, but it also allows an almost total reduction of the consequences of risk occurrence. The objective of risk management is to ensure framing within the limits of risk tolerance - lower consequences at the maximum possible limit - at a reasonable cost.

A risk matrix is created based on the probability of risk occurrence and the probable impact, and risks identified must be addressed in the following order: risks with high impact and high probability; risks with high impact and low probability; risks with low impact and high probability; risks with low impact and low probability;

Decision makers need to examine risks with high impact or high probability in order to determine, for each of them, either to reduce the likelihood of occurrence or to reduce the impact, or both.

For each risk that needs to be managed, decision makers must identify the countermeasures to be adopted and their costs. Risk reduction means reducing the likelihood, the impact or both. Risk reduction is an important strategy that may be expensive or not. In most cases, risk reduction is cost effective if compared to occasional costs incurred by risks' manifestation.

Risk acceptance is a strategy of the project manager, who is in charge with the review of the situation from time to time during the project. The manager manages risks by monitoring the situation and controlling it when it occurs. Risk monitoring can be associated with reference stage or events monitoring, regularly reserving the time required for the analysis of the most likely and most damaging risks, adopting the required remedial measures.

Ecological risk management is a component of environmental risk management, dealing with the risks posed by human activities on the flora, fauna and ecosystems.

Environmental risks can be classified into two categories:

- Risk to the natural environment. This type of risk admits that an organization's activities can result in some form of environmental change. Environmental risk may concern: flora and fauna, health and welfare of the people, social and cultural welfare of the people, environmental resources (water, air and soil), climate.

- Risk to the organization: the risk of non-compliance with existing or future law or criteria. This category includes company losses as a result of an inadequate management, decline in the company's reputation, litigation costs and difficulties in ensuring or at least maintaining the possibility of carrying out their own activities.

Environmental risk management provides a set of formal processes underlying environmental decision-making and supports the decision maker in its efforts to minimize the level of uncertainty.

Environmental risk management facilitates a structured and systematic approach to the process of environmental decision-making, combining various techniques of evaluation and consultation, uniting them into a whole that gives consistency to the decision-making approach.

Environmental risk management can lead to direct benefits to any organization, by improving the information available. Thus, environmental risk management can reduce costs and add value, can

minimize the organization's exposure to risks or increase the likelihood of business continuity under normal conditions and of obtaining new permits and authorizations.

Environmental risk management differs significantly from other risks' management, due to the complexity of the environment. The large number of ecosystems and organisms, how they interact with each other or with neighboring systems generate both a high degree of complexity and a significant level of uncertainty. In most cases, decisions relate to long periods of time and are based on multiple hypotheses about the potential impact. Due to the difficulty of formulating specific hypotheses, decisions are often taken under scientific uncertainty over the possible consequences.

The implementation of environmental risk management is aimed at achieving certain specific goals:

- adopting informed decisions;

- planning the management system based on the prioritization of environmental risks;

- efficient use of resources;

- increasing the organization's ability to cope in a competitive environment;

- achieving a level of transparency in the decision management and implementation process;

- providing increased flexibility for alternative actions based on risk;

- ensuring compliance with the legislation;

- substantiation of an approach regarding the uncertainty management method;

The benefits of the risk management system in the long term include:

- achieving a sustainable management;

- efficient planning, as a result of knowing and understanding the key factors of risk exposure;

- reducing costs, as a result of adverse effects forecasting and adopting appropriate preventive measures;

- highlighting the positive consequences;

- ensuring an effective communication between organizations and affected or interested parties (stakeholders), in order to design priority action programs;

- improving audit processes and higher capitalization of internal and external review results;

- better results in terms of efficiency, effectiveness and adequacy of the programs; for example, improved environmental management and better allocation of available (human, financial and material) resources.

Environmental risk management is affected by a number of factors, among which the most important are: the absence of data or the existence of a small amount of data; the need to formulate hypotheses; the natural variability; use of new concepts, techniques and methods that come from underdeveloped scientific fields and that are the subject of many disputes and controversies regarding the actions to be taken; larger periods of time (for example, although future generations must be taken into account, ecological changes may occur slowly, due to lag between causes' action and effect materialization); potential effects on the environment and economic welfare at local, regional, national, international and global level and the possibility of irreversible consequences; absence of a clear and direct link between certain causes and the effects on the environment.

The conduct of risk management process requires both the top management's commitment and decisional energy, but is never the sole responsibility of the top management or of the organizations providing consultancy on risks, also requiring the involvement of the employees, since the latter are the first to identify an incident, a potential threat or an opportunity for improvement. Also, stakeholders may be involved in this process.

Standard stages of risk management are the following:

- establishing the context: determining the strategic, organizational and risk management context, and establishing analyzes' structure and criteria against which risks will be assessed; identification of the stakeholders and defining the communication and consultation policies;

- risk identification: identifying what can happen, including the related hazards and the consequences;
- risk analysis: risk analysis in terms of probability and severity; possibilities of control and the effect of control measures on the severity of the consequences; likelihood of occurrence and severity may be combined in order to estimate the level of risk;
- risk assessment and prioritization: comparing risk levels estimated against pre-defined criteria; further on, risks can be ranked in order to identify priorities; risks identified as having low priority can be accepted without being treated, being only subject to monitoring and review;
- risk treatment: development and implementation of a management plan, which must include considerations on the allocation of financial and other resources, and action deadlines;
- communication and consultation: consultation and communication with the stakeholders, internal and external, at each stage of the risk management process;
- monitoring and review: risk monitoring and review and the assessment of the risk management system performance and of the changes that can affect it.
The stages referring to communication and consultation, as well as monitoring and review involve activities and concepts that comprise the management process in its entirety. At each stage of the process, as well as during the risk management process, appropriate communication and consultation mechanisms must exist and operate both within the organization and between the organization and external parties.

Each stage of the risk management process must be documented. The documentation must contain data on the hypotheses, methods and information sources used, and the results obtained.

Environmental risk management can be implemented at all levels of an organization, including at the strategic and operational level.

Implementation at the strategic level. In general, environmental risk management at the strategic level involves addressing environmental issues in terms of how they may affect business and the activities of the organization, namely the risk to the organization induced by environmental issues.

Environmental risk management implementation at strategic level includes:

- Creating or updating the environmental policy of the organization and of the management systems by including in them risk management objectives and principles;

- Achieving the organization's strategic planning, using a risk-based approach;

- Incorporating risk management concepts and processes in the environmental management system;

- Establishing criteria of risk acceptability, in accordance with the requirements of law in force;

Environmental risk management at the operational level involves focusing on specific environmental risks. Environmental risk management implementation at operational level can include:

- Determining the level of risk to an ecosystem where certain activities and operations are carried out; the use of risk management principles for the assessment of environmental impact;

- Determining the compliance with risk acceptability criteria and standards;

- Providing the information required for environmental reporting.

Environmental risk management should be an integral part of the global management system. The determination of the methods for risk management system integration or interaction with the environmental management system and other management systems implemented by the organization should not lead to an increase of the resources needed for this process.

The analysis and assessment of the risk management aspects allow the identification and prioritization of risks that the organization can control. This prioritization supports both the process of making decision on treatment options and the planning of ways to achieve continuous improvement of environmental performance, in conjunction with the environmental management system.

The preliminary analysis will allow us to check whether there are sufficient data for the evaluation and management process to be deepened. In other cases, the preliminary analysis provides

enough information to allow the making of informed decisions (for example, by identifying risks that are unacceptable only to a certain particular location). Sometimes, it is possible to determine whether a risk is acceptable only based on a preliminary qualitative analysis.

Since few environmental risks are not static in nature, the entire risk management cycle should be repeated at different time intervals. The resumption of the process based on acceptance criteria that are more and more rigorous ensures the continuous improvement of environmental risk management.

Conclusions

Environmental risk management differs significantly from other types of risk management, because its features are derived from diversity of environment with high number of systems that interact with each other and generates both a high degree of complexity and a significant level of uncertainty.

Due to the difficulty of specific circumstances, decisions are often adopted as scientific uncertainty about the possible consequences.

Risk management covers culture, processes and structures dedicated effectively to the management of potential opportunities and adverse effects.

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BUSINESS MANAGEMENT AND ENERGY EFFICIENCY IN THE FOOD INDUSTRY OF MOLDOVA

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Abstract

The article underlines the necessity of a concept of modernization of the national economy in terms of the global crisis, based on production systems strengthening, implementation of innovational technologies, efficient energy management, building business on models that take into account the life cycle of technology and business in areas with high competitive potential, and also to support small and medium businesses in complementary sectors.

Keywords: modernization, energy management, industrial technologies, business models, business life cycle

JEL Classification: G30, L00, N7

Introduction

Policy modernization of the national economy of Moldova is based on attempts to conceptualize the development of innovative segments in terms of Westernization and budget austerization against the phenomena backdrop of global crisis that need to ensure a competitive economy growth, also of branches or areas with a competitive potential on international level. The period 2009-2012 is characterized by a massive effort of the state to modernize the state's tax and financial-economic policy in detriment of economic sphere. The economic modernization measures should ensure the following directions:

- Changes at technological level;
- Updating national production in science, technology, production organization in best contemporary practices;
- Complex integration in regional and global innovation processes;
- Proportionalize the production structure of the economy according to the criteria of industrial and post-industrial development, etc.

Description of the problem

General issue of the Moldovan economy is the lack of innovative technologies implementation. Development of the Moldovan economy is impossible just by making the process of modernization in the productive sector, and especially in the food sector, which has the largest share in GDP. The modernization of the Moldovan industry need a model, based on consideration of a complex phenomena and changing conditions caused by external and internal environment and taking the best international practices in the field of energy management.

Methodology and data sources

Study is based on the method of statistical analysis and synthesis of SMEs business sector development indicators and of energy consumption in food industry of Moldova.

Evolution of Moldovan food industry

According to data for 2012, some experts [7] noted a modest improvement of public expenditure management and of economic freedom index. The situation in the industry demonstrates that there were no effective remedies to enhance the sector and old business continue to use those simple and expanded Lohn production systems and the new one of franchise, with technological single-cycle scheme or low number of technological operations, does not require independent technological intelligence and does not provide any legally organizational or technological competitiveness. Meanwhile, the situation is complicated by catastrophic reduction of qualified industrial personnel. According to statistical data in 2004-2012 the share of labor costs in GDP is

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over 44%, much higher than in neighboring countries, e.g. Romania - about 16%. There aren't changes in the evolution share of the Gross Value Added in gross production in the mining and manufacturing sectors (Table 1). The correlation of added value in these sectors has declined steadily: 43.8 times in 2004, 34.8 times in 2005, 24.8 times in 2006, 23.9 times in 2007, 22.5 times in 2008, 25.5 times in 2009, 28.2 times in 2010, 28.26 times in 2011.

Table 1

The share of Gross Value Added in gross production of Moldova, %

The share of Gross Value Added in gross production	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total, including:	38,0	38,0	38,0	37,16	36,2	39,8	39,98	39,98	38,24
Branches of extractive industries	48,51	47,93	47,50	47,29	47,03	46,76	46,92	47,00	48,21
Branches of manufacturing industry	23,42	22,09	22,83	22,67	22,58	23,70	23,81	23,90	24,95

Source: Authors' calculations according to NBS

Moldova has reached a fairly high level of international integration, but this integration occurs in external trade and not in production, that's why searching for needed production resources and competitive advantages remains a permanent objective and a process of total consumption of government effort.

The dynamic of SMEs development in Moldova

Some changes in the structure of industries are insufficient manifested or have an unstable character, in order to increase and reduce the share of some areas. So, by 2010 there has been some increase in industrial enterprises, but starting from 2011 we found a sharp reduction in the number of employees in industrial enterprises, except dairy production, leather, leather and footwear, machinery and electrical equipment. In the period 2004-2012 took place a decline in the share of the main groups of goods in total production. The share of food has decreased from 51.7% in 2004 to 41.5% in 2011, while the share of wines - from 20.6% to 6.1% over the same period. Out of 40 manufacturing industries, specializing in the production of food and other, 16 have a share up to 1.0% in the structure of industrial production, 6 have a share up to 2.0%, 15 up to 6%, 2 – up to 10.0% and 1 up to 42%, two branches have the share in the range of 20 to 50%. Thus, orientation of economic policy including industry area (to shredding the national economy sectors, forming an important sector of small and medium businesses, to create an economy based on consumerism), obviously did not provide basic tasks: economic growth, sustainable and stable development within the forecasted indicators. Table 2 shows the decline of Moldova's small and medium enterprises in recent years.

Table 2

Indicators of SMEs in Moldova, 2010-2011

Year	Number of enterprises, thousand units		Number of personnel, thousand pers.		Revenue from sales		Profit before taxation	
	small	medium	small	medium	small	medium	small	medium
2010	45,6	97,7	309,4	58,8	65263,2	36,8	5456,9	41,4
2011	47,3	97,5 ↓	294,2 ↓	57,7 ↓	71887,6	34,6 ↓	5180,2 ↓	35,9 ↓

Source: Authors' calculations according to NBS

Table 3

Activity indicators of SMEs in 2013

Economic Agent			The share of SMEs in total enterprises,%	
1.	Number of enterprises, thousand	52,2	Number of enterprises	97,4
2.	Revenue from sales, bn lei	231,6	Revenue from sales	33,4
3.	Profit, bn lei	4,2	Profit	47,8

Source: Authors' calculations according to NBS

Some of the causes of these phenomena can be considered: 1.disproportion between the branches of the national economy; 2.branch management incompetent; 3 models of inefficient management at all levels.

Given the scientific conceptions related to the existence of several types of economy modernization there are: spontaneous and organic (Europe, North America), "catch-up" and inorganic (part of Europe, Latin America, Asia, Africa), forced (Asia Southeast), totalitarian, partial, etc.; analizing the results of economic reform according to strategic concepts, we can say that modernization measures in the form of national projects, undertaken in the industrial sectors of the Moldovan economy can be attributed to the combined type "catch-up" –partial, the first type can be approached as a variety of globalization, developed as a mean of harmonizing the advanced economies and their neighboring countries. We believe that this approach to modernization has a complex and systemic character, but also admits a degree of freedom in the interpretation and argumentation of national projects tools as innovative techniques for filling innovative-modernist space of reformation.

In the companies, creating new business models is conditioned in our view by the following factors: demand education, create innovative new consumer values, high speed of managerial process, extensive communication and partnership with customers, etc. In western management are emphasized and other factors, for example, intellectual productivity of personnel, intellectual networks, the complexity of systems at all levels, skills delegation and leadership positioning, self-training, adaptation to specific individual. It is obvious that in terms of creating an entrepreneurial economy in Moldova and delayed appearance of the concept of industry development, we can assume a lack of self-development perspective regarding small business and keeping a huge conceptual gap in terms of culture management of larger companies.

Modernization issues in the food industry

The current model does not correspond to the concept of management integrity system at different levels, even if the model has all the necessary elements: macroeconomic management of state, corporate strategic management, operational and tactical management.

Another typology of economic modernization allows an approach of endogenous-exogenous type based on mixed investments. However, the data show a substantial reduction of international experts in foreign investment in 2011-2013, about 3 times, namely in the Moldovan industry. Withdrawn may be considered due to the following factors:

- Lack of a clear industrial state policy during the years;
- Lack of systemic and complex approach to recover industrial sector;
- Irretrievable drawdown in short perspective of competitive advantages in terms of human resources and tech branches;
- Poor financial management at economy level, in general.

Branch nomenclature of the Moldovan economy according to the cost of R&D indicator and net product includes branches of all four groups:

1. Pharmaceutical, production of computers and media;

2.Electrical machinery, chemical, machine building;

3. Plastics production, metallurgy and metal processing;

4. Wood processing, food, textile.

Strategy to support exports as well as other policies has not reached the expected efficiency. The World Bank data show [9] that about 27% of exports do not meet ISIC nomenclature and include mostly raw and intermediate materials thus occupy large percentage of exports of goods with low added value.

In the past 10 years great popularity have outsourcing practice which has allowed to simplify the structure of the business cycle and increase specialization of enterprises [1]. Meanwhile, large companies unlike small firms retain their auxiliary functions, including logistics, marketing, energy insurance, which often influences and decrease productivity indicators and inefficient production capital, and therefore refuse some types of core activities, particularly research and development,

part of training of organizational-technical operations production, which in turn contributes to further loss of production potential and lower technological level of production.

Stagnation and market destabilization, on the one hand, characterize the Moldovan economy after 2008, and, on the other hand, strong business model vulnerability influenced by the external environment caused reduced quality of top management in generating positive financial flows from operating activities. In the post-crisis period the model-type training of firm value lost it's credibility. The formation of firm value in unstable market conditions, caused by the efficient organization of operational flow "sales-procurement-production" required solving the main problem: the strategy transformation at operation level. Thus, choosing appropriate business model for tasks development of firms could be possible in base of technological outputs elaboration to complicated managerial solutions and organizational knowledge life cycle of particular interest for the choice of management and knowing life cycle of a firm shows a special interest in choosing type of management, determine the scale and effects of the current issues, forecast of development barriers [2].

One of the features of the modern business is its reduced validity period. The classical model of business does not reflect contemporary business challenges, and in particular formation of competitive advantage of the firm through business model innovation. Therefore modern business model should include besides the six traditional components: the proposed consumer value, market share, structure of value chain, model of profit creation, competitive strategies, development strategies, a new component, innovation generalized, each of them assuming the following: the proposed consumer value is the consumer issue description in terms of expected consumer quality profiled from the point of view of utility, to meet the needs and price. Market segment represents identification of consumer target group with delimitation of its specific needs. The structure of the chain value includes firm position and position of competitors, business partners in order to identify business opportunities in creating maximum value and more qualitative satisfaction of consumer needs. The financial model of the business is the company's activity to ensure the continued operation of the operational model. Growth strategy involves describing the work to ensure sustainable development of the company.

Business models in the food industry

The business model as management method of sustainable business consists in transforming resources into economic value and description of process formation of cash flow by positioning the company in the value chain in the field/ practical economic sector [3]. Business model is determined by the design principles of the company, in particular, the choice of operational technologies, describe key business processes, determining the resources necessary for organizational system formation, which would ensure achievement of business transformation in the organization business strategy, and thus the transition from markets and products analysis to the implementation of technology and resources in terms of maximizing customer needs and minimizing the company's needs. Leap from one development phase to another, deformities in application of successive development principles and phases mix management demonstrates negative experience, confirmed by statistics on social demography of Moldovan enterprises, which, in turn, demonstrates mandatory consecutive sequence of organizations development phases regardless the model which leads them.

Historical evolution of business models comprised generally three chronological lines: 1.For effective business development, based on production in specific functional area; 2. Business development, based on marketing development function; 3. Firm efficiency, ensured by launching new production based on the use of new technologies, highly qualified human resources, specialist in the field with a strong creative potential with the development of several new products with high technology, product substitution frequency limited only by technological possibilities, the reduced role of marketing and the strong role of research and development. Moldovan economy is mainly unsuccessful in competitiveness due to transition from production model (developed in the Soviet period) to marketing model (developed by companies regardless of size, scope, its own history, with the transition to market conditions). Characteristics of economic development of the country in recent years clearly demonstrates the difficulties in seizing and sizing hazards in business development of organizations caused by poor knowledge of life cycle stages development and business organization, but also and managerial deformation at any level by production functions substitution in the marketing and efficient use and development of their production capacity as a result of mismanagement of the business model components.

Competitiveness of food industry through energy management

For increasing the competitiveness of the food and beverage industry (one of the most dynamic sectors of the industry and most important in Europe, with a significant contribution to the economic and social impact) European policy is oriented on tools like: system of export restitution and of active perfection designed for processed agricultural products, chocolate, confectionery, sweet drinks, etc; trade negotiations regarding access improvement of European companies in the global market; contribution to the drafting and implementation of legislation on food industry [10]. Currently, all food business operators are challenged to become more entrepreneurial and to use new energy trends to create new products and services. We believe that energy management use by European food industry could serve as an example for Moldovan food industry to increase their competitiveness.

With the substantial increase in the cost of energy, given the industry's consumption share of 30% in energy consumption structure, Moldova energy efficiency is low compared to European countries. Energy consumption in global food industry covers only a small part of the total cost of production (about 3%). As a result, until recently, Moldovan enterprises have been weak involved in energy management. Today, even if food industry remains a non-intensive energy industry, with increasing energy prices and environmental awareness it's also increasing the growing role of energy efficiency in Moldovan food industry.

According to the study of experts V. Moroz, Poisic M. and Ignat A. [4], the main constraints for energy efficiency in the country are: high energy consumption, increasing energy prices, technology and equipment morally and physically outdated, lack of knowledge and skills in energy efficiency and renewable energy use, excessive dependence on imported energy resources (95% import energy). They also argue that the competitiveness of the food industry is directly affected by the used technology and low efficiency of the energy sector in the country has a negative impact on industry development of local agricultural raw material processing.

It is considered that application of energy management in a company whose main objective is to ensure a judicious and efficient use of energy to maximize profits by minimizing energy costs, increase the market competitiveness of the company (Figure 1). Energy management use economic and engineering principles to control the energy consumption costs for providing services required in buildings and industry [5]. Most of energy cuts in the Europe's food industry come from improving energy efficiency by changing traditional sources of energy and the ability to couple to other energy sources.

In this context, the authors propose the following solutions targeted to reduce maintenance costs, increase competitiveness and reliability.

1. Reduce energy consumption by reducing costs, namely:
- Framing consumption in contracted values;
- Tracking the specific consumptions in locations and areas, empowering local and central monitoring;
- Taken measures from analyzed reports;
- Systems to manage energy consumption;
- Elimination of parasitic energy consumption and strengthening discipline use.

1.Increased competitiveness can be achieved by:
- Exact calculation of cost and energy intensity per location;
- Efficient use of energy resources and utilities.

2.Increase the reliability and reduce maintenance costs through:
- Analysis of the distribution quality of energy consumption;
- Analysis of incidents in case of emergencies;
- Prevention of major equipment faults by monitoring consumption parameters and preventive maintenance.

European entrepreneurs consider that implementation of energy efficiency programs at the companies will diminish energy intensity per unit of output, which will lead to a significant increase of product competitiveness on market. A significant role in the sustainability and efficiency of the food industry is: the correct selection, healthier and easier for consumers; improve product quality; reducing the purchase price for the goods; ensuring requirements for food safety; achieve effective management of the food chain and environmental compliance and directives.

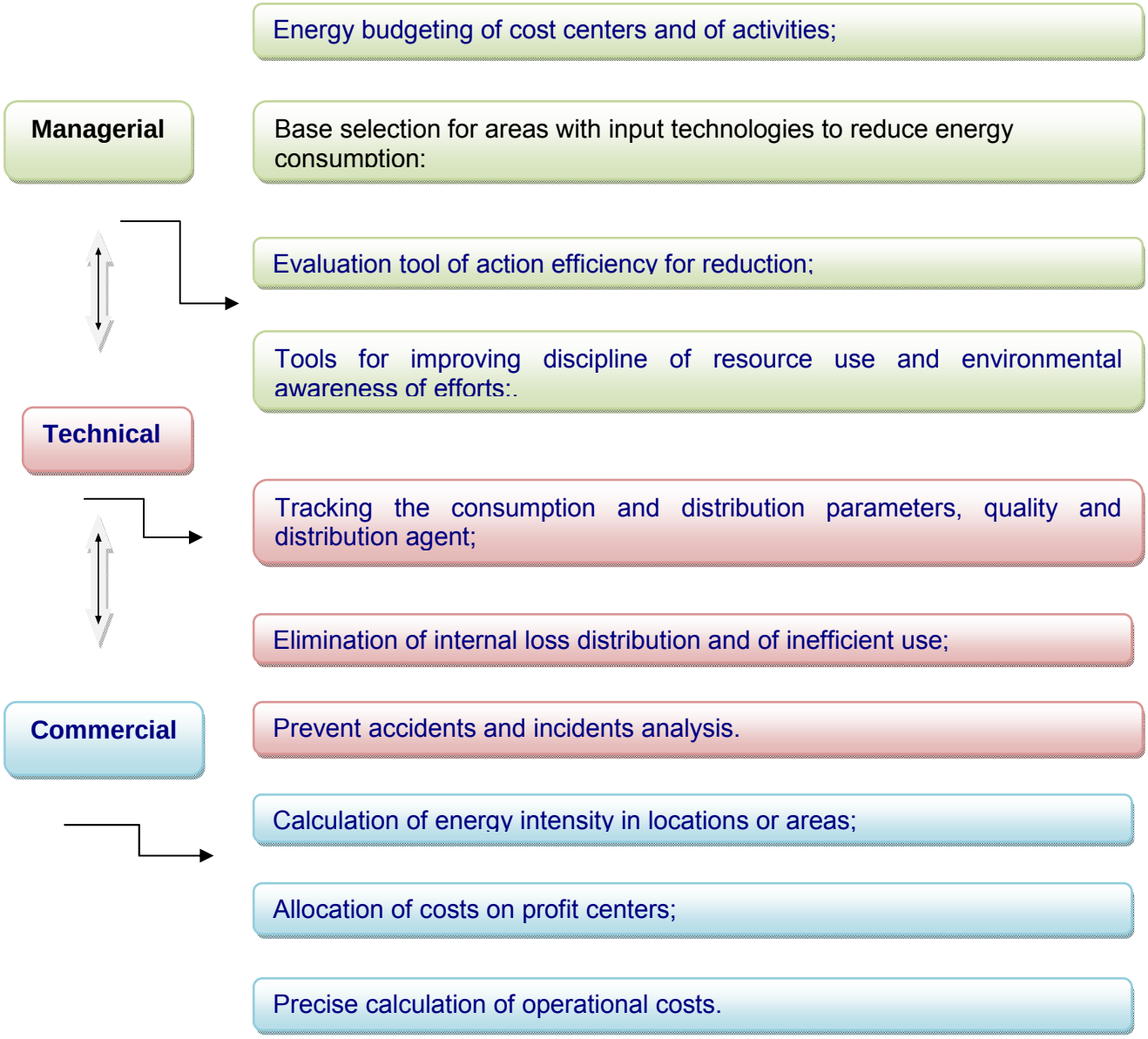
Energy budgeting of cost centers and of activities;
Managerial
Base selection for areas with input technologies to reduce energy consumption:
Evaluation tool of action efficiency for reduction;
Tools for improving discipline of resource use and environmental awareness of efforts:.
Technical
Tracking the consumption and distribution parameters, quality and distribution agent;
Elimination of internal loss distribution and of inefficient use;
Commercial
Prevent accidents and incidents analysis.
Calculation of energy intensity in locations or areas;
Allocation of costs on profit centers;
Precise calculation of operational costs.

Figure 1. Model of energy management in the food industry
Source: author's elaboration

In this context, in order to support sustainable development of food industry, there are several initiatives at global, regional or national level, often undertaken by NGOs and national governments. Such an initiative in Europe is represented by the European Consultative Forum on Environment and Sustainable Development, which provides consultancy on environmental issues. Worldwide, we can mention the Energy Efficiency and Renewable Energy (REEEP) partnership, which works to reduce the barriers that limit energy absorption from renewable energy and energy efficiency technologies, with a primary focus on emerging markets and developing countries (Figure 2,3).

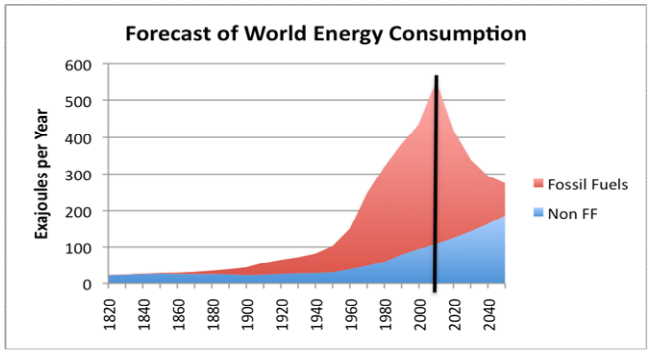

Figure 2. Forecast of World Energy Consumption, 1820-2040
Source: ourfiniteworld.com/2012/07/26/an-optimistic-energygdp-forecast-to-2050-based-on-data-since-1820/

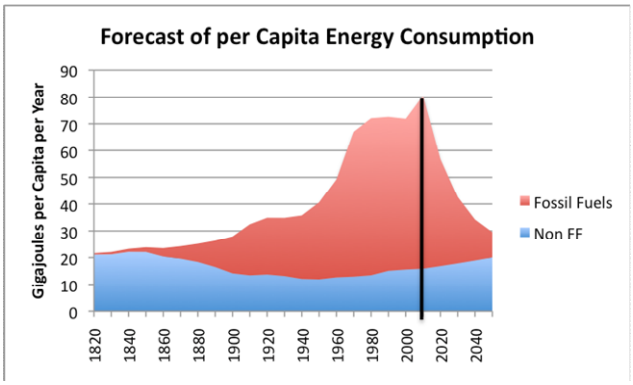

Figure 3. Forecast of per Capita Energy Consumption

Source: ourfiniteworld.com/2012/07/26/an-optimistic-energygdp-forecast-to-2050-based-on-data-since-1820/

Today, advanced technologies define the entire food production chain. Agricultural machines have eliminated human labor in many areas of production; biotechnology is an important factor for change in this sector, due to complex application of chemicals for plant breeding and food processing; most common used techniques for food preservation are thermal processing and dehydration that require significant amounts of energy, where subject of food processing become more popular in world markets. Thereby, thermal process uses about 29% of total energy in the food industry, while cooling and refrigeration process about 16% of the total energy input.

Derived technologies with computer networks and specialized software are a central force in providing infrastructure support to allow global multitude movement of components involved.

Energy management experience in the European food sector demonstrates that reduction of energy consumption can be achieved politically through technical measures (application of efficient engines, fuels and materials); replace and improve techniques and procedures; and changing social aspect by reducing consumption of various products, including those imported.

Table 4

Energy use in the food, drink and tobacco industries in the United Kingdom

Energy use	**%**
Boilers and steam	49
Direct heating (fuel)	18
Direct heating (electricity)	8
Refrigeration	6
Compressed air	2
Motors and drives	17
Total	**100**

Source: Authors' calculations

We find that entrepreneurial effort in the industry focuses mainly on production costs minimization and less on energy costs. Recently, Chamber of Commerce and Industry of Moldova in order to implement energy efficiency practices organized seminars on energy management systems at the enterprise level for professionals from this sector [6], which in some way conditioned growth of production volumes on certain types of activities (table 5).

Table 5

Value of food industry, by types of activities, mil.lei

	2007	2008	2009	2010	2011	2012	2013**
Industry – total	**26173,5**	**29988,4**	**22643,9**	**28140,1**	**34194,4**	**36362.2**	**106,8**
Manufacturing industry	**21390,3**	**24045,5**	**18080,3**	**22784,9**	**28245,1**	**30147.7**	**107,9**
Manufacture of food products and beverages	***9952,5***	***11781,4***	***9256,7***	***11737,6***	***14199,7***	***15587.6***	***106,3***
Production, processing and preserving of meat and meat products	1123,7	1467,7	1296,1	1473,7	1924,8	2435.3	103,0
Processing and preserving of fruits and vegetables	1277,8	1148,4	802,4	1042,8	1821,7	1608.2	113,7
Manufacture of dairy products	1027,6	1192,4	1043,0	1248,5	1391,2	1533.7	108,9
Manufacture of products of flour-milling industry, of starches and starch products	190,5	221,7	142,1	152,0	224,6	219.0	121,8
Manufacture of bread and pastry products	944,3	1125,6	1021,1	1114,9	1303,7	1370.2	104,9
Manufacture of sugar	442,8	876,9	340,5	1058,0	1095,7	935.8	*
Manufacture of cocoa, chocolate and sugar confectionery	405,4	467,7	419,1	481,3	542,9	546.1	108,7
Manufacture of distilled alcoholic drinks	504,3	534,3	463,2	511,1	604,3	925.4	119,6
Manufacture of wine	1766,6	2210,1	1675,6	2022,5	2073,8	2315.4	92,6
Production of mineral water and freshener beverages	313,9	333,9	254,9	323,9	397,3	401.4	92,5

Source: Authors' calculations according to NBS

Note: *missing data; **Industrial production index is for January-December 2013 reported to January-December 2012

Currently, Moldovan food industry faces series of challenges that require a reassessment of current practices in production and trade, cooperation between firms along the vertical supply chain, government influence on management activities of enterprises, in order to optimize the potential of production systems and balancing structure of industrial production (table 6).

Table 6

The structure of the food industry, by types of activities

- % -

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Industry – total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	*****
Manufacture of food products and beverages	***50,8***	***42,9***	***39,7***	***41,3***	***40,9***	***41,7***	***41,5***	***42,9***	*****
Production, processing and preserving of meat and meat products	3,2	3,5	4,5	5,1	5,7	5,2	5,6	6,7	*
Processing and preserving of fruits and vegetables	3,4	4,1	5,1	4,0	3,5	3,7	5,3	4,4	*
Manufacture of dairy products	3,6	3,8	4,1	4,2	4,6	4,4	4,1	4,2	*
Manufacture of bread and pastry products	3,4	3,5	3,8	3,9	4,5	4,0	3,8	3,8	*
Manufacture of grain mill products, starches and starch products	0,4	0,8	0,8	0,8	0,6	0,5	0,7	0,6	*
Manufacture of sugar	3,3	4,2	1,8	3,1	1,5	3,8	3,2	2,6	*
Manufacture of cocoa, chocolate and sugar confectionery	1,4	1,6	1,6	1,6	1,9	1,7	1,6	1,5	*
Manufacture of distilled alcoholic drinks	4,0	2,5	2,0	1,9	2,0	1.,8	1,8	2,5	*
Manufacture of wine	20,0	10,3	7,0	7,7	7,4	7,2	6,1	6,4	*

Source: Authors' calculations according to NBS

Note: * missing data

Conclusions

1. We believe that general problem of Moldova's economy is the lack of innovative technologies implementation.

2. Development of the Moldovan economy is impossible without achieving modernization process in the productive sector.

3. Modernization of industry from Moldova requires creating a model based on the consideration of complex phenomena and of changing conditions caused by external and internal environment.

4. Main tasks of economic modernization in Moldova are the following:

• supporting small and medium businesses to diversify brute product;

• strengthening the industrial potential by recovering large systems of production;

For the technological modernization of the economy are considered following main directions:

• ensuring at government level through coordinated management of technology at all levels;

• refocusing national efforts to fundamental science as the basis of technical and technological development, and to critical technologies for modern business and economics in the concept of the life cycle of technology and business.

6. Recent increases of energy costs encourage the food industry to optimize the use of energy. Reduction of energy consumption can be achieved by understanding potential of production systems, the interaction between energy inputs and manufacturing industrial technologies and market demands.

7. International track record can be considered effective in the recovery of Moldovan industries with high potential competitiveness in the international market.

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RESPONSIBLE CORPORATE BEHAVIOUR TOWARDS CONSUMERS AND BUSINESS INNOVATION – PREREQUISITES OF SUSTAINABLE DEVELOPMENT. A STUDY ON EU COUNTRIES

Cristina GĂNESCU[116]

Abstract

The present study aims to highlight the role of responsible corporate behaviour towards consumers and business innovation in finding solutions for sustainability in EU countries. Determining the impact of responsible corporate behaviour towards consumers and business innovation on sustainable development was based on a specific measurement methodology that used essential components of every phenomenon, and on an analysis of the content of various databases such as the Eurostat and the Innovation Union Scoreboard 2014. We applied multifactorial regression to reveal that European countries whose organizations are socially responsible towards consumers and business innovative support sustainable development. The methodology employed to select indicators that define analysed phenomena and that are relevant to the analysis model generated certain limitations of this study. Future research may refine the methodology or identify other metrics, in the context of diversifying them.

Keywords: responsible corporate behaviour towards consumers, business innovation, sustainable development, EU countries.

JEL Classification: M14, Q01, O52

1. Introduction

Lately, scholarly literature focuses intensely on explaining the content and the role of sustainable development, corporate social responsibility, and even on determining the importance of innovation in business. All of these concepts seem to lead in the same direction: "the prime objective is to consider the firm's environment and its stakeholders, which means being responsible towards them for the company's outputs and impacts, and not only meeting shareholders' interests" (Ebner, Baumgartner, 2006, p.3).

The relationship between these three phenomena is presented differently, depending on the approaches of various authors.

Most experts consider that corporate social responsibility is the microeconomic dimension of the macroeconomic concept of sustainable development (Bhagwat, 2011; Tureac et al., 2010). In another approach, corporate social responsibility is perceived as an integral part of the concept of sustainable development, which contributes to the goals of corporate sustainability.

At the same time, innovation is seen as one of the ways to competitiveness that is more difficult to assess. "To be successful and innovative today, companies must consider the social and environmental impact of their operational processes, stimulate employees to be creative, and collaborate with their customers, suppliers and other business partners in designing and developing new products and services" (MacGregor, Fontrodona, 2008, p.1).

Sustainable development requires responsible and innovative corporations (Almunawar, Low, 2014, p. 174), while corporate responsibility towards consumers and business innovation are two of the ways organizations contribute to sustainable development.

The first two sections of the paper examine the concepts of responsible corporate behaviour towards consumers and business innovation based on a critical analysis of scholarly literature. The analysis is based on the model of evaluation of responsible corporate behaviour towards consumers described in scholarly literature (Gănescu, Gangone, Asandei, 2014). The third section analyses the relationship between responsible corporate behaviour towards consumers, business innovation and sustainable development. The fourth section describes the methodology for assessing the impact of responsible corporate behaviour towards consumers and business innovation on sustainable development in 2012 in EU member states. This section also contains

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information about the methods employed for data collection, an analysis of the data, and research findings.

2. Literature review

2.1. Responsible corporate behaviour towards consumers

Stakeholder theory, developed by Freeman (1984), states that "managers develop relationships based on trust with an array of stakeholders directly affected by the actions of the organizations they manage." Therefore, stakeholders, in general, and consumers, in particular, expect the organization to comply with the law, to be ethical, trustworthy, and responsible in its actions, to be transparent, and to meet their needs (Gătej, 2011; Serban, 2012).

CSR practices that organizations employ for consumers have been analysed in numerous studies, but the concept of *responsible corporate behaviour towards consumers* has only recently emerged in scholarly literature (Gănescu, Gangone, Asandei, 2014, p.353). This justifies using the model of evaluation of responsible corporate behaviour towards consumers in the present research in order to determine the role of this phenomenon in the sustainable development of EU states.

Responsible corporate behaviour towards consumers is the response of companies to the increasing attention consumers place on the quality and safety of consumer products and services, and on the impact the industry has on the community and the environment. In this context, "the issue of consumer protection encompasses the system of relations created in the market, caused by direct contact between consumer and product or service, and the framework of producer-consumer relations, namely the interplay of supply and demand, price liberalization, trade advertising, trade staff behaviour, product quality "(Sitnikov, Bocean, 2010, p.361).

Thus, responsible corporate behaviour towards consumers (RCBC) covers three major components (Figure no. 1): *responsibility for the quality and safety of products and services, responsibility for environmental compliance, and responsibility for the transparency of operations and relationships* (Gănescu, Gangone, Asandei, 2014, p.354).

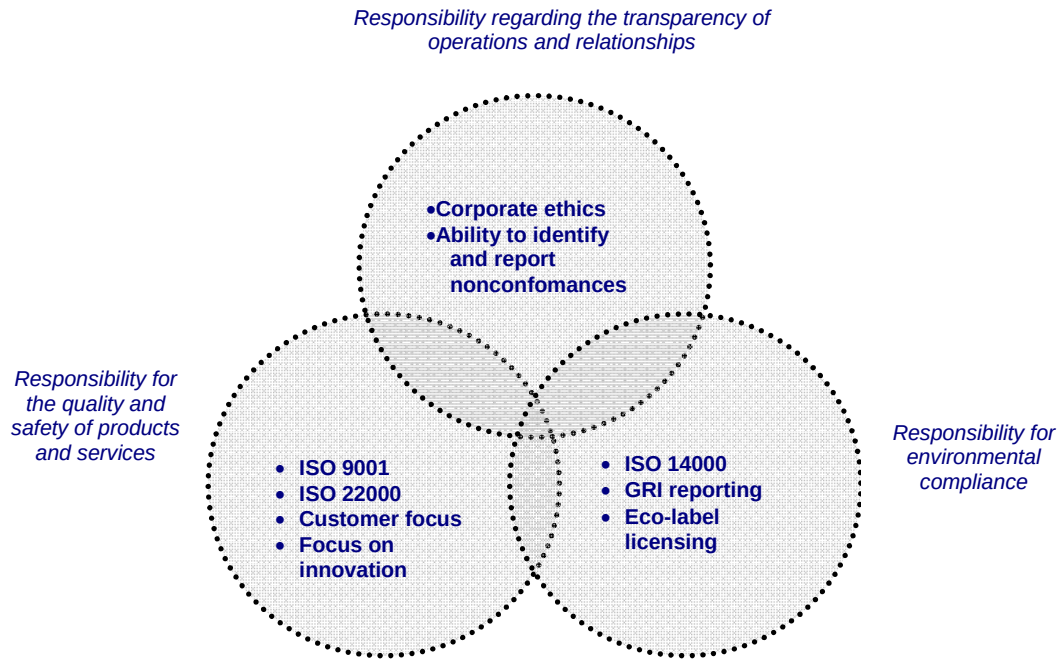
Responsibility regarding the transparency of operations and relationships
•Corporate ethics
•Ability to identify and report nonconfomances
Responsibility for the quality and safety of products and services
• ISO 9001
• ISO 22000
• Customer focus
• Focus on innovation
• ISO 14000
• GRI reporting
• Eco-label licensing
Responsibility for environmental compliance

Figure 1. A model of evaluation of responsible corporate behaviour towards consumers
Source: taken from Gănescu, Gangone, Asandei, 2014, p.355

According to the model of evaluation of responsible corporate behaviour towards consumers (Gănescu, Gangone, Asandei, 2014 pp.354-356), the first major component, the responsibility for the quality and safety of products and services, requires organizations to market quality products and services that are safe for consumption and do not endanger the lives and health of consumers. The second major component, the responsibility for environmental compliance, can be assessed based on three aspects: corporate interest toward environmental certification, GRI reporting and eco-label licensing. This component is derived from consumers' right to enjoy a healthy

environment. Organizations should identify resources and sustainable, environmentally friendly technological solutions to provide future generations with a chance to grow healthily. The third major component, the responsibility for transparency of operations and relationships, derives from consumers' right to be correctly and accurately informed about the characteristics of products and services, and to be educated about their quality as consumers. This component can be evaluated based on two aspects: the ethics of organizations, and their ability to identify and report non-conformances.

2.2. Innovation in business

Globalization and profound changes of the environment require businesses to adapt to the many challenges ahead. Both theorists and businessmen support the expansion of business innovation to find solutions to social and environmental challenges.

The implementation of an innovative and sustainable business model is based on external reporting pressures (inputs), corporate support, management performance, business strategy, and value creation (Tian, Martin, 2012). According to other authors, the factors that determine the application of innovation in business are: decreasing performance, the environment, unexpected effects of voluntary decisions, the dynamics of the business model itself (Demil, Lecocq, 2010). By applying strategies for creating innovative business models, organizations imagine and learn new ways of doing business, solving problems (Govindarajan, Trimble, 2004), and identifying effective strategies for success (Hamel, 1998).

Most organizations have become aware that their success is assured if they rethink their businesses in order to become more profitable and help solve global problems (Als, 2010, p.8). Innovation is recognized as a generator of industrial growth, but also the most important cause of social and environmental imbalances; from a corporate perspective, innovation can be a primary source of competitive advantage, but also a significant source of risk of failure and disproportion (Teece, Pisano, Shuen, 1997).

Scholarly literature uses different concepts when addressing corporate social responsibility in relation to innovation. For example, it uses the term “Corporate Social Innovation” introduced by author RM Kanter (1999), which involves achieving business success through sustainability as a prerequisite in the creation and development of new products or services. Innovative CSR can be defined as “an innovative process that aims at designing a profitable product or service which, in an innovative and user-oriented way, can prove beneficial to the surrounding environment and society” (Als, 2010, p.3).

Other authors believe that “strategic CSR derives opportunities of innovation to play a significant role in the assessment of performance” (Kim, You, 2013, p.384). By working with CSR-driven innovation in a strategic manner, businesses can increase their growth and competitiveness.

A recent study (Tianjing Dai et al., 2013) developed a conceptual framework to illustrate how sustainability objectives are involved in the management control system that is designed to operationalize the objectives and strategies of corporate social responsibility. This study empirically illustrates strategic and responsive corporate social responsibility using the example of two Chinese companies, and emphasizes the role of the management control system in implementing the CSR strategies of these two companies.

Another study (MacGregor, Fontrodona, 2008) explores the relationship between innovation and corporate social responsibility in 60 small and medium organizations in Europe. The authors have created a model of social innovation and a virtuous circle of social responsibility and innovation, a bidirectional system that is based on the idea that corporate social responsibility leads to innovation, and innovation leads to corporate social responsibility. The proposed model serves small and medium enterprises that wish to turn innovation into a formalized process, creating sustainable value for organizations.

3. The relationship between responsible corporate behaviour towards consumers, business innovation and sustainable development

The concept of sustainable development originated in the eighteenth century and was the result of debates of the Club of Rome, being presented for the first time in the "Limits to Growth" report (Meadows, 1972).

In 1987, the World Commission on Environment and Development defined sustainable development as an ethical concept and this has become the major definition of sustainable development: “Sustainable Development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of “needs”, in particular the essential needs of the world’s poor, to which overriding priority should be given, and the idea of limitations imposed by the state of technology and social organisation of the environment’s ability to meet present and future needs. Thus, the goals of economic and social development must be defined in terms of sustainability in all developed or developing, market-oriented or centrally planned countries” (World Commission on Environment and Development, 1987).

“Because sustainable development is intrinsically a normative, ambiguous and subjective notion, a practical implementation of sustainable development has to incorporate the inherent conflicts between the values, ambitions and goals of a multitude of stakeholders” (Loorbach, Rotmans, 2006, p.188). “Sustainable development is a broad, dialectical concept that balances the need for economic growth with environmental protection and social equity” (Wilson, 2003, p.1).

Scholarly literature lacks studies that highlight the relationship between responsible corporate behaviour towards consumers, business innovation and sustainable development.

It is widely accepted, however, that corporate social responsibility, as a whole, ensures business sustainability and long term stability: “CSR is an initiative that has been touted as a possible remedy for the ills of globalization that hinder the realization of sustainable development – that is, inequities in wealth, environmental degradation, and unfair labour practices that are endemic of globalization” (Herrmann, 2004, p.205). The same author states that “corporate social responsibility is a potential solution that could lead to the achievement of sustainable development” (Herrmann, 2004, p.205).

Attempts to define the concept of CSR, closely link it to sustainable development principles. The World Business Council for Sustainable Development has defined CSR as “the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families, as well as of the local community and society at large” (Watts, Holme, Tinto, 1998, p.3). On the other hand, Moon (2007) believes that: “the extent to which CSR can contribute to sustainable development is theorized through the natural-resource-based view of the organization, which applies particularly to explaining corporate interest in ecological issues, and this logic is extended to the business interest in social sustainability”.

In fact, corporate social responsibility is an integral part of sustainable development (Bhagwat, 2011, p.6). Some studies show that "social responsibility strategies implemented by companies and integrated into their long term business strategies are the strongest promoter of the process of developing sustainable business" (Gănescu, Gangone, Asandei, 2013, p.14).

Scholarly literature presents five different ways of explaining the relationship between CSR and sustainable development: “CSR correlates with the social dimension of sustainable development as defined by Brundtland and the model of the triple-bottom-line, which believes in an equal consideration of ecological, social and economic aspects to meet present and future needs; CSR is a kind of social strand of sustainability development; another trend in the sustainability discussion is the opinion that sustainability or corporate sustainability provides the basis for CSR; CSR and sustainable development can be used synonymously” (Ebner, Baumgartner, 2006, pp.5-6).

We believe in the idea that, at microeconomic level, sustainable development is manifested through corporate sustainability and is based on three pillars: economic, environmental and social (CSR). The social component, namely corporate social responsibility, is based on the following objectives: human rights, stakeholder rights, employee rights, environmental protection, community involvement, supplier relations (Bhagwat, 2011, pp.9-11).

“Responsible business is a necessary but not sufficient condition of sustainable development” (Moon, 2007). Both organizations and governments must identify the type of corporate social responsibility that would have a greater contribution to sustainable development.

In our view, given that consumers are important stakeholders, responsible corporate behaviour towards consumers is a key determinant of corporate sustainability.

Along with responsible corporate behaviour towards consumers, *business innovation is a key determinant of corporate sustainability*. "It is clear that innovation should be considered as a valid argument for CSR, along the lines of the four traditional arguments for social responsibility: moral, reputation, licence-to-operate and sustainability" (Asongu, 2007, p.19).

"Sustainability is often seen as being about protection of amenities (including cultural diversity), but it is equally about continued advancement or creation: a better and more just world. Both the protection of amenities and creation of new and better services for more people require innovation in institutions of governance and socio-technical systems. Innovation can help to ease the adverse effects of some trade-offs posed by existing technology. But innovation is not without problems: it also brings risks, which should be anticipated and dealt with" (Kemp, Parto, Gibson, 2005).

Measuring sustainable development is a very obvious concern of researchers. There are numerous studies on the stage of measuring sustainable development (Parris, Kates, 2003). Economic, social and natural indicators are used to assess sustainable development indicators (Barrera-Roldan, Saldivar-Valdes, 2002). The above-mentioned authors have identified the following indicators for each of the evaluated items: economic indicators such as GDP per capita, employment, electric intensity, environmental assets; social indicators such as education, health, poverty, potable water availability, sewage infrastructure, electricity availability; natural indicators such as hydrologic balance, water quality, air quality, vegetation, soil use, erosion, ecological and protected areas.

4. A methodology to assess the impact of responsible corporate behaviour towards consumers and business innovation on sustainable development

The purpose of this research is to assess the impact of responsible corporate behaviour towards consumers and business innovation on sustainable development in EU states. Our research is also of interest due to the fact that sustainable development is a fundamental goal of the European Union, and measuring the progress of sustainable development is an integral part of the Sustainable Development Strategy of the European Union (European Commission, 2014).

We have formulated the following objectives:

O1. Collect data by content analysis of identified sources;

O2. Determine the index of sustainable development, based on an original methodology and rank EU members based on this index;

O3. Assess the impact of responsible corporate behaviour towards consumers and business innovation on sustainable development.

The hypothesis to be tested in this study is: *Responsible corporate behaviour towards consumers and business innovation exert a positive influence on sustainable development.*

Using content analysis of identified sources, we collected data to create a ranking of EU member states based on two indexes: the index of responsible corporate behaviour towards consumers and the innovation index.

The evaluation of responsible corporate behaviour towards consumers was based on the results of a previous study that ranked EU member states according to the I_{RCBC} index (Gănescu, Gangone, Asandei, 2014).

To assess innovation in EU member states we analysed the 2014 Innovation Union Scoreboard, which ranks states based on an innovation index - I_{iNOV} (European Commission, 2014). Since 2013 data were not complete for all 28 states, we decided to retrieve information for 2012 and this lead to the removal of Croatia from the list.

A ranking of EU states based on the two indexes is presented in Table 1.

The methodology for determining the index of sustainable development (GDI) for 2012 involved a content analysis of the Eurostat database and of the Report on sustainable development in the European Union (European Commission, 2014).

Table 1

A ranking of EU states based on the index of responsible corporate behaviour towards consumers and on the innovation index

2012, without Croatia

No.	Country	Country acronym	I_{RCBC}	Rank I_{RCBC}	I_{iNOV}	Rank I_i
1	Austria	AT	28,10	10	0,599	9
2	Belgium	BE	23,70	12	0,627	6
3	Bulgaria	BG	22,81	13	0,191	27
4	Czech Republic	CZ	11,19	23	0,405	17
5	Cyprus	CY	12,64	21	0,498	12
6	Denmark	DK	32,05	9	0,722	2
7	Estonia	EE	15,48	20	0,488	14
8	Finland	FI	39,20	6	0,685	4
9	France	FR	43,48	5	0,579	11
10	Germany	DE	55,93	1	0,708	3
11	Greece	EL	19,48	17	0,380	19
12	Ireland	IE	21,38	14	0,594	10
13	Italy	IT	55,34	2	0,446	15
14	Latvia	LV	8,07	26	0,234	25
15	Lithuania	LT	12,44	22	0,271	23
16	Luxemburg	LU	20,35	15	0,627	7
17	Malta	MT	10,42	25	0,300	22
18	Great Britain	UK	49,55	4	0,618	8
19	The Netherlands	NL	34,18	8	0,644	5
20	Poland	PL	18,90	18	0,268	24
21	Portugal	PT	19,85	16	0,402	18
22	Romania	RO	16,49	19	0,229	26
23	Slovakia	SK	7,64	27	0,350	20
24	Slovenia	SI	10,97	24	0,495	13
25	Spain	ES	51,85	3	0,411	16
26	Sweden	SE	35,67	7	0,752	1
27	Hungary	HU	25,64	11	0,335	21

Source: Gănescu, Gangone, Asandei, 2014, p.358; European Commission, 2014.

Several steps were needed to determine the index of sustainable development. In the first stage we identified the indicators needed to assess sustainable development, after an analysis of the Report on sustainable development in the European Union (European Commission, 2014). The European Commission has identified 12 key indicators of the index of sustainable development. They fall into 10 topics: socio-economic development, sustainable consumption and production, social inclusion, demographic changes, public health, climate change and energy, sustainable transportation, natural resources, global partnership and good governance.

Considering these issues, we developed a list of sub-indexes and measurement indicators based on which to calculate the index of sustainable development (Table 2):

Table 2

A list of sub-indexes and indicators to assess sustainable development

No.	Sub-index	Specific indicators
1	Socio-economic development	• Real GDP per capita (*euro/capita*)
2	Sustainable consumption and production	• Resource productivity (*euro/kg*)
3	Social inclusion	• People at risk of poverty or social exclusion (*%*)
4	Demographic changes	• Employment rate of older workers (*%*)
5	Public health	• Life expectancy at birth, for males and females (*years*)
6	Climate change and energy	• Greenhouse gas emissions (*index, reference for year 1990=100*) • Primary energy consumption (*million tones oil*) • Share of renewable energy in gross final energy consumption (*%*)
7	Sustainable transportation	• Energy consumption of transport relative to GDP (*index, reference for year 2000=100*)
9	Global partnership	• Official development assistance as share of gross national income (*%*)

Source: adapted by author, the Report on sustainable development in the European Union (European Commission, 2014)

We created the database necessary for research by entering the values identified for each specific indicator involved in assessing sustainable development. Quantitative and qualitative specific indicators were aggregated and converted using the min-max method to maintain order and relative distance between the scores of various countries included in the analysis. To calculate the sub-index of climate change and energy we used a weighting coefficient of 0.33

To determine the index of sustainable development we calculated an average of the nine sub-indexes, using the following formula:

$I_c = (I_{c1} + I_{c2} + I_{c3} + \ldots + I_{cn})/n$ (1)

The results have enabled a ranking of EU countries, in terms of sustainable development. The country with the highest value of the index is the one where the sustainability objectives of organizations are fully aligned to the principles of sustainable development and to EU's strategy of sustainable development (Table 3).

Table 3

Ranking EU member states according to the index of sustainable development – I_{SD}

2012, without Croatia

Ranking	Country	Country acronym	I_{SD}
1.	Sweden	SE	82.76
2.	Luxemburg	LU	73.21
3.	The Netherlands	NL	71.68
4.	Denmark	DK	70.02
5.	Great Britain	UK	68.31
6.	Germany	DE	62.21
7.	Finland	FI	61.30
8.	France	FR	59.31
9.	Ireland	IE	58.79
10.	Belgium	BE	56.61
11.	Austria	AT	53.04
12.	Spain	ES	52.62
13.	Italy	IT	49.28
14.	Cyprus	CY	46.30
15.	Estonia	EE	46.21
16.	Portugal	PT	45.56
17.	Malta	MT	44.44
18.	Czech Republic	CZ	42.71
19.	Greece	EL	42.22
20.	Slovakia	SK	37.13
21.	Lithuania	LT	36.57
22.	Slovenia	SI	35.34
23.	Latvia	LV	34.45
24.	Hungary	HU	29.02
25.	Poland	PL	26.24
26.	Romania	RO	23.06
27.	Bulgaria	BG	20.52

Source: created by author.

Top ranking countries such as Sweden, Luxembourg, The Netherlands, Denmark, and United Kingdom are developed EU countries, with a major impact on achieving the objectives of sustainable development.

Countries at the end of the ranking (Hungary, Poland, Romania and Bulgaria) have poor performance in terms of sustainable development. Romania's value of the index of sustainable development shows that EU objectives on sustainable development are far from being achieved. Romania has a very low value of GDP / capita, as a result of the disastrous state of the economy.

The productivity of using natural resources is also reduced. Also, almost 42% of the population is exposed to the risk of poverty and social exclusion.

The relationship between responsible corporate behaviour towards consumers, business innovation (especially at microeconomic level) and sustainable development (a macroeconomic phenomenon) is an obvious one.

4. Data analysis and findings

We created a database to highlight the influence of responsible corporate behaviour towards consumers and business innovation on sustainable development.

We applied statistical methods of analysis using Eviews 8 computer software. Testing the hypothesis of the study consisted of testing the dependence of the SD variable to RCBC and INOV explanatory variables, by using the method of multifactorial linear regression (Table 4).

Table 4

The results of the regression function

Dependent variable: DS
Method: The method of least squares
Sample: 1 27 Observations: 27

Variables	Coefficient	Standard error	Statistical t	Prob.
C		9.925	3.343	0.002
RCBC		0.188	3.129	0.004
INOV		16.562	0.087	0.931
Coefficient of determination (R^2)	0.290			
Adjusted coefficient of determination	0.230			
Standard error	14.283			
The sum of squares of error	4896.424			
Fisher Statistic	4.902			
Probability associated to Fisher statistic	0.016			

Source: calculated by author using Eviews 8 software

The model that validates the hypothesis is the following:

$SD_i = b_0 + b_1 \cdot RCBC_i + b_2 \cdot INOV_i + \varepsilon_i$ (2)

(SD = sustainable development; RCBC = responsible corporate behaviour towards consumers; INOV = business innovation; ε_i = error; i = countries from 1 to 27).

The information presented in Table no. 4 shall read:

- the free term in the regression equation (C) is b0 = 33.183 and is the point where all explanatory variables are equal to 0. This coefficient has a standard error of 9.925;

- the coefficient for the RCBC variable, with a value of 0.589, is positive and indicates a direct connection between SD and RCBC, so that an increase by one unit of RCBC determines an increase of SD by 0.589 points. Since P-value = 0.004 <0.05, the coefficient is significant;

- the coefficient for the INOV variable, with a value of 1.445, is positive and indicates a direct link between SD and INOV, so that an increase of INOV by one unit determines an increase of SD by 1,445 points. Since P-value = 0.931> 0.05, the coefficient is insignificant;

- the R2 coefficient of determination is 0.290 and expresses the fact that only 29% of the variation in sustainable development could be explained using the analysed variables, which indicates that there are other factors which influence the dependent variable;

- The adjusted correlation report shows that 0.230 of the total variance is due to the regression line, taking into account the number of degrees of freedom.

The analysis of coefficients generated the following regression model:

$$SD = 33.183 + 0.589 \times RCBC + 1.445 \times INOV + \varepsilon_{i,} \quad (3)$$

The hypothesis of the study is verified: Responsible corporate behaviour towards consumers and business innovation exert a positive influence on sustainable development.

We believe that achieving sustainable development is possible through the common efforts of all member states and organizations, especially the multinational ones, in order to improve the economic, social and environmental indicators. The index of sustainable development, calculated using the methodology described in this research, allowed us to rank EU member states, taking into account all three types of indicators: economic, social, and environmental.

Conclusions

As EU member states show no real progress towards sustainable development and the key indicators of sustainable development are headed to a moderate or clearly unfavourable direction, further efforts are needed to lead the European Union to sustainable development.

This paper is of interest for scholarly literature as it emphasizes the fact that phenomena such as responsible corporate behaviour towards consumers and business innovation act as determinants of sustainable development. The novelty in this paper is the creation of an index of sustainable development, based on the key themes set out by the European Commission, and of a ranking of EU states based on this index.

The results of the regression model demonstrate that a responsible attitude towards consumers and business innovation positively influence sustainable development. Even if statistical analysis doesn't show a significant influence of responsible corporate behaviour towards consumers and business innovation on sustainable development, it is clear that these elements could complete the set of key issues of sustainable development.

This study has some limitations, stemming from the choice of variables used to determine the index of sustainable development, the lack of data for some measurement variables, and the exclusive focus on analysing year 2012. A study on panel type data could be useful to determine the relationship between the analysed phenomena. A development of the reporting procedures of organizations and nations would increase knowledge in the future.

Despite these limitations, the study is of interest to researchers, practitioners and EU institutions as it offers the possibility to evaluate and compare sustainable development using a national index.

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MACROECONOMY CONDITIONS AND S&T DEVELOPMENT[117]

Vitalii GRYGA[118]

Abstract

The paper is devoted to the issues of interconnectedness of S&T development and macroeconomic conditions. Despite of a bulk of studies on the impact of innovation and S&T expenditures on economic growth, there is a lack of studies which try to capture influence of economic development on innovation and S&T patterns. Thus in this paper we have tried to find statistical interrelations between a number of macroeconomic indicators and R&D intensity of GDP as the main indicator of S&T development. The scope of the study covers all countries which send their data to the World Bank database and UNESCO Institute of statistic during 2000-2011. Analysed period reflects one full business cycle from the end of the previous crisis (end of 90es) to the end of the last one (end of 2000-es). Number of quite interesting evidence were identified in the paper. First of all it concerns the fact that R&D policy does not heavily depend on some macroeconomic indicators such as cash balance, the level of industrialization but it rather depends on the level of natural recourses endowment, cost of capital, macroeconomic stability as well.

Keywords: macroeconomic indicators, R&D intensity.
JEL Classification: O1, O32, O33

Introduction

As innovation and S&T development are considered the one of the major engine for economic growth there a lot of studies to measure the impact of innovation as well as R&D on the growth. Well-known Solow model developed in 60s is one of the first studies regarding this issue. The comprehensive analysis of the most popular models of economic growth was done by *Aghion Ph. and Howit P.* (2009). In the last 10-15 years there were a lot of studies based on micro data, that allowed to demonstrate how innovation and R&D influence firm performance (see *Doraszelski U., Jaumandreu J.,* 2013). Efficiency of different policy measures is another popular issue of economic research on innovation. Government subsidies and tax credits are the most discussable of them. *Zuniga-Vicente J.A et all* (2012) has analyzed a bulk of studies regarding the impact of public subsidies and tax credit on R&D. They found that 60% of these studies showed positive impact of policy measures on R&D activity . *Mohnen P. and Lokshin B. (*2012) argued that effectiveness of policy measures, in particular tax credit, is highly depended on circumstances and conditions, where these measures were applied. We agree with this point and state that macroeconomic conditions are key factor of policy effectiveness.

Despite this the number of studies related to the influence of macroeconomic conditions on R&D and innovation is limited. Thomson N. *and Stam E.*(2010) have presented own research results on macroeconomic dynamics and innovation performance of SME in the Netherlands. They used Logit models to test following hypotheses:

- Consumption is positively correlated with product innovations;
- Unemployment is positively correlated with product innovations;
- Cost of capital is negatively correlated with product innovations;
- GDP growth and product innovation are not correlated;
- Real GDP growth is negatively correlated with product innovations.

Time period of the study covered 1999-2009 that is corresponded to the business cycle. Evidence that real GDP growth in the Netherlands is positively correlated with innovations is one of the most important results of this study. However, industries with traditionally high innovation activities are not sensitive to macroeconomic dynamics, they do innovate regardless the economic situation as

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[118] Institute for Economics and Forecasting, National Academy of Sciences of Ukraine, Kiev, Ukraine

innovation is an important part of their strategies. Usually these industries are capital intensive so termination or delaying innovation projects may lead them to damaging adjustment costs.

Also we found some papers, where the impact of specific issues on innovation development was studies. So, *Aghion P. et all (*2009) found that higher competition lead to more intensive innovation activity. This view is also confirmed by *Hashmi A. (2013)* , but it is true only for industries on the technology frontier. *Jones C*. (2005), and *Toivanen O., L. Väänänen* (2010) studied the impact of education on innovation activity. The results of both studies proved that education level positively affects innovation activity.

At the same time there is no consensus on impact of FDI on innovation and R&D development. Some researchers argued that technology import (as part of FDI) compliment domestic R&D, others suggest that such import will lead to shrinking of domestic S&T activities in developing countries (*Kathuria V.*, 2008).

Given that this paper is an attempt to find correlation between macroeconomic indicators and R&D development in global context.

Data

The quality of data is an important issue that affects the results of every study. To avoid major problems on comparability of data among countries we used only two databases. World Bank Indicators covers data on a lot of macroeconomic indicators as well as covers other specific fields like S&T and education. The database of UNESCO Institute of Statistic is the second source. There are more detailed data on R&D financing in this database.

Initially we planned to cover all 214 countries presented in the World Bank Indicators database. But only approx. 70 of them provided necessary data on more or less regular basis. The rest of countries are very small and their economies are poor (with few exceptions, like Israel) we consider that they will not affect much our results

Methods

To achieve the aim of our study we decided to use quite simple technique of scatter plotting. Despite econometric modelling which has strict requirements to quality of the data, scatter plots provide general insight on the correlations between different issues.

The level of R&D expenditures as percent of GDP (R&D intensity) is depended variable representing S&T area. Additionally we used the level of expenditures on R&D conducted by business sector as percent of GDP (business R&D intensity). It helped us to address innovation oriented activity.

There were following macroeconomic indicators used in the analysis:

- real GDP growth (higher growth might lead to higher innovation and R&D expenditures),
- standard deviation of real GDP growth (as a proxy of stability, we expect that higher instability negatively correlate with R&D development)
- budget revenues as percent of GDP (more money government has more expenditure might be directed on R&D),
- cash deficit (we suppose that there is no correlation between cash deficit and S&T financing, while some governors in developing countries try to cut R&D expenditures when cash deficit is high),
- real interest rate (it reflects the cost of money for business sector, so it may be expected that there is negative correlation with business expenditures on R&D),
- inflation (as it reflects macroeconomic stability, we expect that high level of inflation will negatively correlate with R&D expenditures),
- share of value added generated by industry (one may expect that more industrially developed country is then more innovation and R&D developed it should be);
- share of profit tax in general amount of enterprise profit (it should be negative correlations among these indicators, as amount of money which enterprise may spend on innovation or R&D will be lower with increasing the tax burden),
- FDI as percent of GDP (it might be expected that more FDI coming into economy will lead to innovation activity increasing, but also it may damage in-house R&D),
- natural resources rent as percent of GDP (higher rent means that country's economy is not innovative driven so R&D activity should be low);

- receipts for the use of intellectual property as percent of GDP (it reflects economic output of R&D effeciency and it is expected that there is a positive link with the R&D expenditures).

To capture possible differences caused by the size of economy and level of economic development we divided analysed countries into 3 groups (low, middle and high income countries) by the level of GPD income per capita. We did not use World Bank classification, and calculated the limits through percentiles (33 and 67%). So, low income group were presented by countries with GDP per capita lower than 1100 USD in 2000, high income group respectively – more than 6500 USD (in constant dollars 2005).

The scope of the study covers all countries in the world which send their data to the World Bank database and UNESCO Institute of statistic during 2000-2011. Analysed period reflects one full business cycle from the end of previous crisis (end of 90es) to the end of the last one (end of 2000-es). As we used the data on 11 years, we took average means respectively to the data type. So for shares we calculated simple averages and used median in some cases, that helped us to address long and medium terms effects. For rates we calculated average using geometrical means.

It should be noted that depended variable were calculated for 2009-2011 as it should reflect macroeconomic conditions impact.

Results

Analysis of GDP growth and economic stability was the first part of the study. At the first look there is no evidence about statistical correlation between GDP growth rates and R&D intensity and even opposite the higher speed development corresponds with lower intensity. But this situation has very logic and robust explanation when we deep into countries' specific. Macao, Equatorial Guinea and Myanmar were countries with the highest growth in 2000-2011. The economic development of these countries is not relying on innovations and R&D. From the other hand, countries with the high R&D intensity and developed S&T sector an the same time usually have high income, and annual rates of GDP growth on 3-4% is quite normal for them.

Given this we looked at the data on middle income countries as Ukraine and Romania in 2000 (see fig. 1)

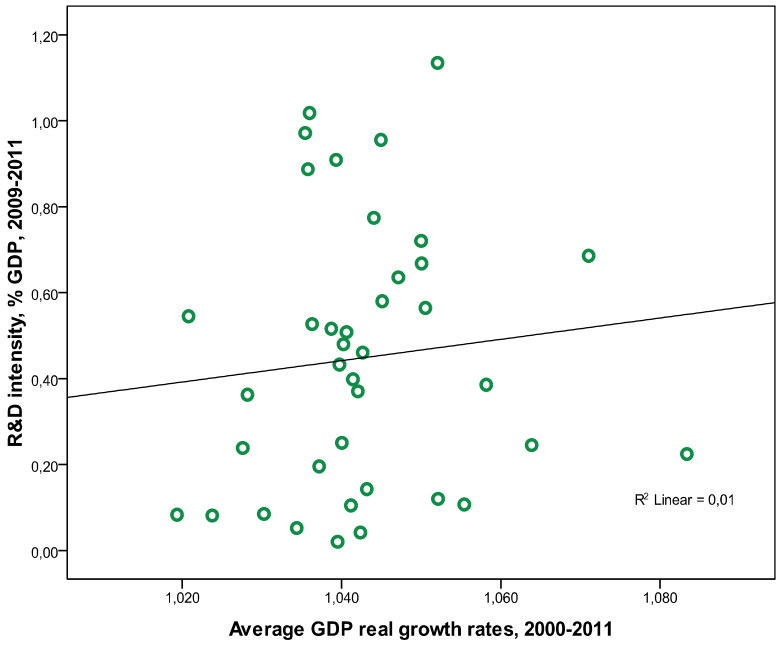

Figure 1. Relation between economic dynamic and R&D intensity in the middle income countries

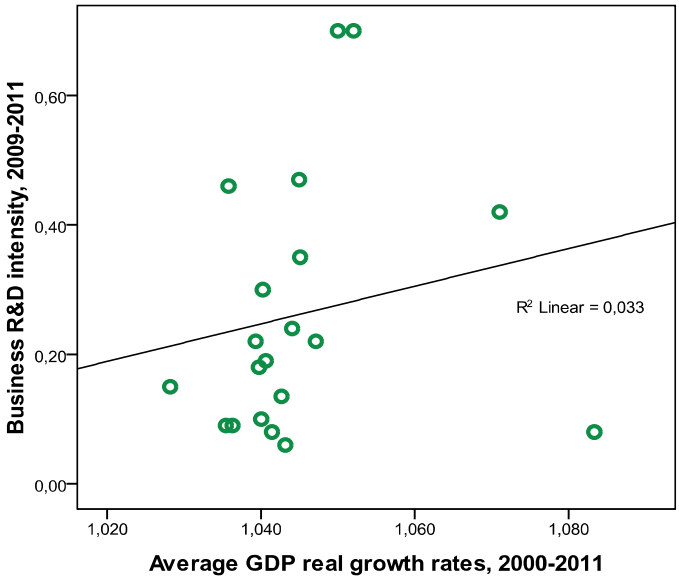

Figure 2. Relation between economic dynamic and business R&D intensity in the middle income countries
Source: World Bank, UNESCO Institute of Statistics.

These figures show correlation between R&D intensity and speed of GDP growth more obvious, but still the scattering is quite large. It is interesting that the R&D intensity of middle income countries is less than 1,2% of GDP, but in many cases it was even less than 0,2%. Nevertheless theses countries experienced quite high rates of economic development (annually 3-5%). It means that a lot of countries are dependent on external environment or global developments because their economies are based on primary industries, mostly managed by foreigners.

This statement is partially illustrated by the figure 2 where correlation between business R&D intensity and GDP growth in middle income countries is presented. In comparison with the overall R&D intensity business R&D is more interconnected with GDP growth. In such case higher R&D business expenditure will lead to faster economic development in the middle income countries.

Given that overal picture with GDP growth rates is not very precise we have found another indicator which illustrate the link of R&D to economic outputs in context of international trade. The receipts for the use of intellectual property (IP) is a charge, payed by nonresidents, for authorized use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs including trade secrets, and franchises) and for the use, through licensing agreements, of produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights. Therefore it is a good proxy for R&D economic output. The scatter plot of expenditures on R&D and the charges for use of IP rights quite clearly shows the positive relation between these indicatores (figure 3).

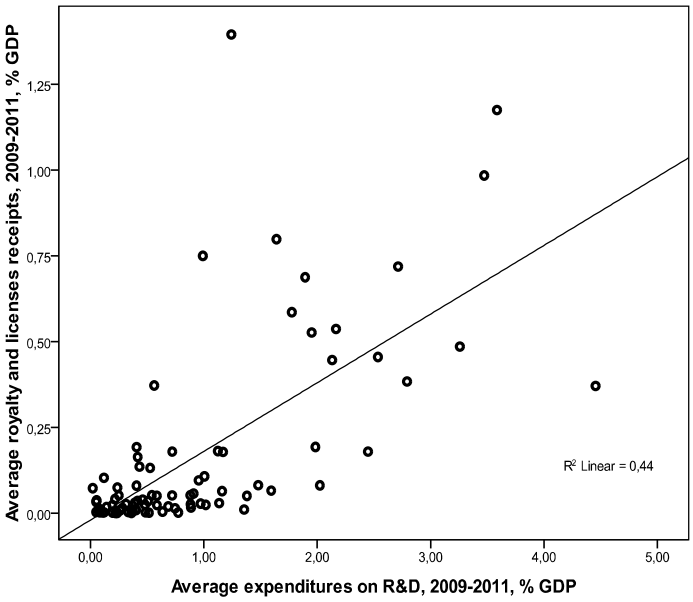

Figure 3. R&D intensity and receipts for the use of IP rights

Source: World Bank

So, it could be treated as a direct evidence of how R&D contribute to ecnomic development of any country. And the next issues will try to answer on question what conditions should be provided to make R&D the most effective tool for economic development.

First of all, we also found some evidence on reverse correlation regarding economic instability, which proves our hypothesis (figure 4). The measure of economic instability is standard deviation of annual GDP growth rates. We realize that instability is common result generated by wide list of factors both external and internal. It also includes public governance issues. The empirical data shows that large instability causes or related with low S&T activity, as business and government during volatile period pay not enough attention to R&D policy measures. So this is an important policy implication that it is vitally for successful R&D to establish quite stable economic environment.

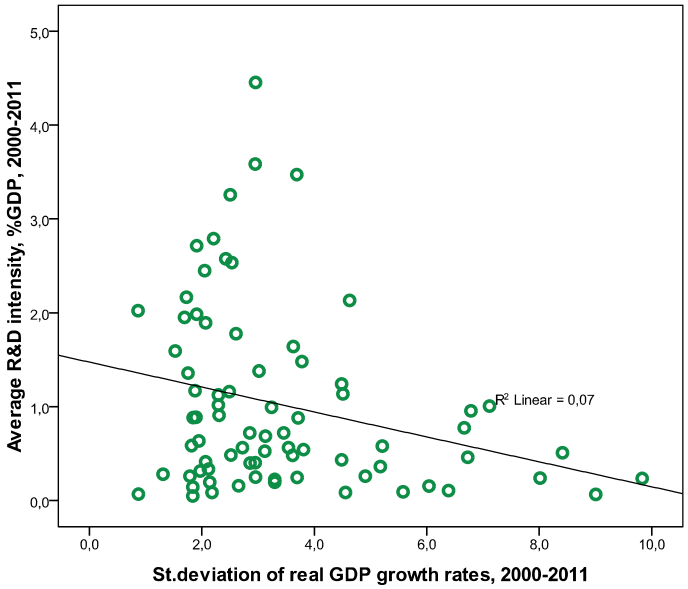

Figure 4. Relation between economic instability and R&D

Source: World Bank, UNESCO Institute of Statistics.

This statement is also confirmed by reverse correlation between inflation (measured as CPI) and R&D intensity. Notable, that strength of relationship between them is much stronger than in previous case. Countries with average inflation more than 6% were not able to keep expenditures on R&D more than 1% of GDP. Moreover the high inflation rates will lead with high probability to decreasing of R&D expenditures because government have to focus efforts on macroeconomic

stabilization. In such situation business will cut their risky projects, that are R&D projects in the most cases.

Country dependence on natural resources depletion and R&D development will be the next issue under discussion (figure 5).

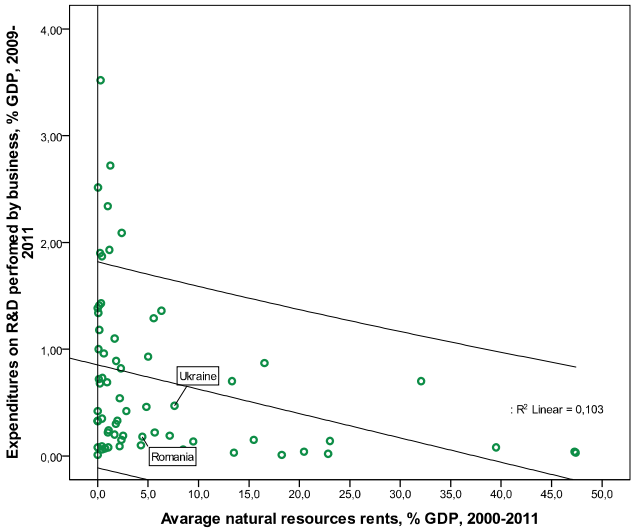

Figure 5. Relation between natural resources endowment and R&D.
Source: World Bank, UNESCO Institute of Statistics.

It is robust evidence of our hypothesis that high dependence on resources damages the opportunity for R&D development. It could be figured out that if the share of natural rent is higher than 5% of GDP, country is not interested in diversification of economy and developing R&D as well.

Continuing analysis of economies' structure it is necessary to look at the industry as a factor of S&T activity. From one side, industry, in particular manufacturing is a key chain of innovation diffusion, and from the other side, there was a trend of deindustrialisation due to increasing role of intangibles. In the same time more and more governments have realized that it is impossible to maintain sustainable economic development without solid industrial base equipped with advanced technologies. USA, France, and even Russia are among countries declared new industrialisation programs.

Statistical data shows that industrial sector of 60% of countries in the world provided 20-40% of value added in the early of 2000s as well as in 2010-2011. Countries with underdeveloped industrial sector usually have R&D intensity below 0,5% of GDP. And R&D intensity may be a little bit higher in case of over industrialized countries (figure 6). In both cases domestic S&T sector does not play an important role in supporting of economic development of the country.

Among low income countries only India has relatively high R&D intensity (0.75% of GDP, the same as Ukraine has now) and in the same time India increased their industrial base from 26% to 30% during 2000-2010. For middle income countries the correlation between industrialisation and R&D intensity is positive. It could be explained by the fact that these countries more rely on own industrial base as the internal market has enough capacity to absorb domestic goods.

The high income group of countries is the most heterogeneous. It could be divided into three subgroups. First subgroup covers small countries with economic development based on hydrocarbon or other natural resources (Brunei, Kuweit etc) and therefore with low R&D intensity. Second group includes countries with moderate S&T sector (R&D intensity is 0.9 – 1.6% of GDP). Irland, Estonia, Italy, Spain, Norway are in these group. And the third one is highly developed countries with high R&D intensity, like USA, Japan, Finland etc.

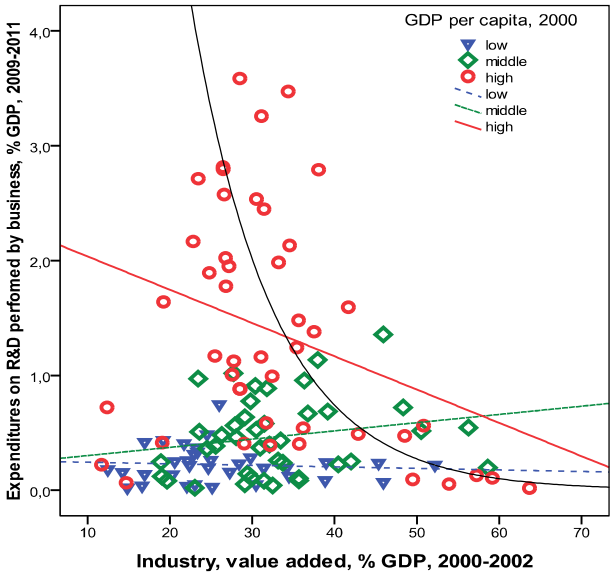

Figure 6. Industrialization and R&D intensity.
Source: World Bank, UNESCO Institute of Statistics.

Influence of FDI on S&T activity was the next issue we studied. Statistical data shows that while FDI positively correlated with GDP growth (the strongest correlation is within low income countries), there is negative correlation within all income groups, except low income. It led us to the conclusion that FDI doesn't contribute to S&T development. The reason could be that foreign investors bring also own technologies and they even don't need domestic R&D capacities to adjust it. Moreover, they will rather be against any improvements and competetive researches from the domestic agents. It is important notion for policy makers proving that FDI couldn't be a driver for activation of S&T development, even if they boost short or medium term development.

The next block of results deals with the financial issues and its impact on R&D intensity. From the policy making point of view, in particular in budgeting process, whether we should cut R&D expenditure in case of large cash deficit or increase it vice versa is an important question. The results of our study show that there is no statistical correlation between R&D expenditures and cash deficit. Moreover the most countries in the world is experiencing cash deficit. Its size is up to -5,0% of GDP, and it doesn't shrink R&D financing. Notably, 60% of countries with high R&D intensity (over 2% of GDP) experienced cash deficit.

The governments could cover the deficit by effective use of investments and other loans. These funds should not be wasted, but invested in infrastructure, education, S&T etc., used in a way that in the future will bring additional income.

The price of capital, which was measured through real interest rate was the next issue for analysis. It affects business more, as entrepreneurs are worrying about cost of capital and profit they could get. So, the scatter plot presented on figure 7 shows that in countries with high real interest rate (over 5%) S&T activity is quite small. It is normal and suitable when the real cost of capital does not exceed 5% that allow to business invest money, including investments in R&D projects.

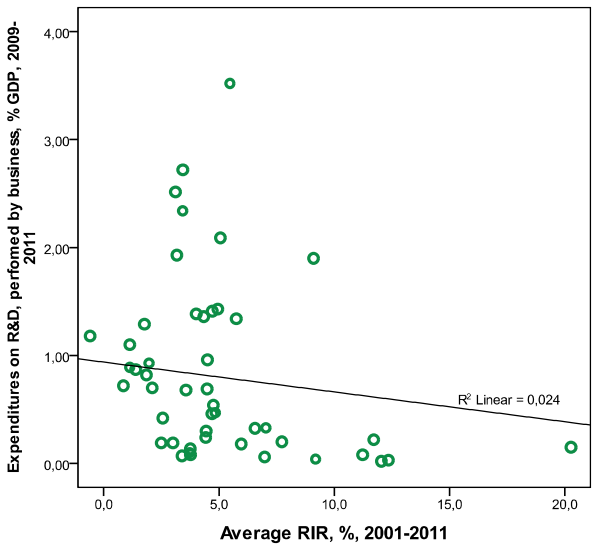

Figure 7. The relation between cost of capital and business R&D intensity.
Source: World Bank, UNESCO Institute of Statistics.

Another important issue deals with the taxation system, so we looked at the relation between business R&D intensity and the share of taxes in their profit (figure 8). If we look at the low income countries, we see that tax burden doesn't correlate with R&D intensity, that is because S&T sector there is very poor (*Goni E., Maloney W.F., 2014*) and the firms don't need R&D as well.

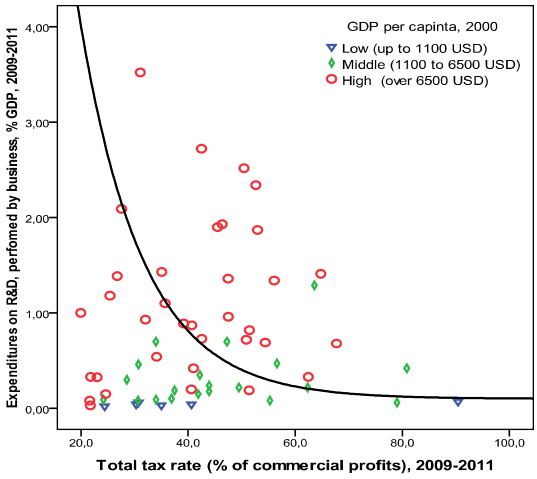

Figure 8. Relation between tax burden and business R&D intensity.
Source: World Bank, UNESCO Institute of Statistics.

But situation is changing drastically when we look at the middle and high income countries, where taxation plays more important role in the innovation process. Obtained data shows nonlinear relation between two variables, but the character is negative. The larger tax burden will reduce business capacity to finance R&D. The data allows to identify the optimal level of tax burden on business is between 30 and 50% of profit, that look the most balanced in term of public and private interests.

Taking into consideration that businessmen are worrying about their property rights one of the indicator presented in the World Bank Database is designed to measure the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. So we matched the corresponding assessments with the data on business R&D intensity and revealed that in countries with stronger legal rights protection business is more open for R&D and innovation as well.

Conclusions

The study of macroeconomic conditions impact on S&T activity is quite complicated task, as it deals with a huge heterogeneity of objects. Each country has a unique economic model that generates a large scattering of economic as well as other indicators. This paper is examined the links between basic macroeconomic conditions and S&T activity starting from simple and basic techniques

instead of complicated econometric models. However, from the one hand we got some results that might be interesting for policy makers and, from the other hand, it is worthwhile to expand further the study applying new variables and more comprehensive tools of analysis.

We draw following points regarding policy implications. First of all, it is need to provide nominal economic stability to create necessary economic environment for R&D and S&T activity. At least government should stabilize prices, and maintain stable medium term growth rates. Second point is that cost of capital determines amount of financial resources, which business can afford to invest on R&D. If it is high, the business will prefer to earn money in other way, instead of innovations. Third point deals with applied economic policy. The international experience showed that amount of financing that governments allocated to R&D was not dependent on the state of macrofinancial situation, in particular, on cash balance.

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PHILLIPS CURVE IN ROMANIA IN CONDITIONS OF NEAR RATIONALITY

Daniel NEAGOE[119]

Abstract

In a period of mainstream economic models failing to explain macroeconomic processes and individual economic behaviors, is necessary to reconsider dominant economic models by approaching with a higher accuracy the economic reality.

The paper is proposing to contribute to Homo Oeconomicus updating process by analyzing one of its fundamental pillars: Phillips Curve, to observe potential latent influences that can be attributed to limited rationality or non-rationality and verify the precision of the model.

The argument of the article takes form of the necessity of a deep evaluation of the concepts and paradigms of classical economics for adjustments with the purpose of a better representation of the reality and for an exact prediction of economic phenomena and their relations.

Keywords: Phillips Curve, Inflation, Unemployment, Romania, Near Rationality

JEL classification: C01 Econometrics, E24 Unemployment, E31 Inflation

Introduction

Phillips Curve is one of the fundamental pillars of Homo Oeconomicus paradigm based on the concepts of selfishness, perfect rationality, static preferences, utility-profit maximization and complete information.

Since its conceptualization, Phillips Curve has intensively influenced important aspects of macroeconomics based on the fictional compromise between Unemployment and Inflation based on the theory of mainstream economics which stipulates that people are rational economic actors, who take decisions only in their own-interest and unconscious and irrational behavior are out of the equation.

In contemporary period there is an emphasis on researching the validity of classical economic models which are not correlated with the latest findings in the field of psychology, sociology, physics and other domains for a more comprehensive approach.

Description of the problem

There is a need of a complete and profound update of mainstream economic theory and its fundamental pillars. Thus, concept and sub-theories that are not credible and correlated with the economic reality should be removed and replaced with valid concepts.

Phillips Curve in the form initially proposed is no longer a valid concept and the latest proposed adjusted Philips Curve models are still incomplete and weak correlated with the economic reality.

The problem rests on the lack of validity of the theoretical models in relation with the economic reality. In the same time, Homo Oeconomicus paradigm needs to be updated to the latest findings in economics, psychology, sociology and other areas. Rationality in its perfect state is no longer seen as a valid concept, so there is a need of replacing it with a more complex and accurate model.

Phillips Curve concept is having its origins in Alban W. Phillips article from 1958 named “The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861 –1957” showing a direct negative correlation between Wages rates and Unemployment rates and a relation between the simple change of Unemployment and salaries, through the following graphic representation:

[119] “Costin C.Kiriţescu” National Institute for Economic Research, Romanian Academy, Bucharest, Romania

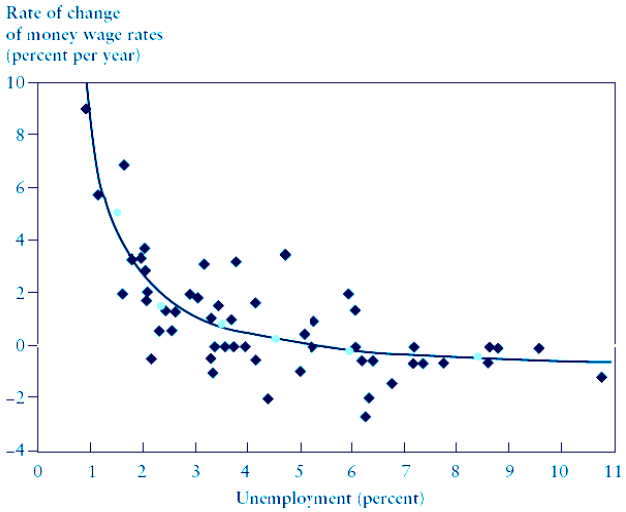

Figure 1. Phillips Curve in UK between1861 and 1957

The presence of a solid correlation between Unemployment and the level of nominal wages and prices had put into discussion the existence of a trade-off between Unemployment and Inflation, which can be exploited by governments for a desirable social result.

In 1967, Milton Friedman started a series of initiatives on establishing a correlation between Unemployment and Inflation after he argued that the salaries are rising once the demand on the labor market overcomes the offer and the salaries are decreasing when the offer overcomes the demand. He stated that the possibility of influencing Unemployment through monetary expansion is just temporary, on the long run, Unemployment returning to its "natural rate". Milton Friedman agreed that there is a temporary trade-off between Unemployment and Inflation but not a permanent one. (Milton Friedman, 1968)

Edmund Phelps affirmed that the equilibrium rate of long-run Unemployment is independent of the rate of Inflation, introducing two innovations in Phillips Curve Model: the first innovation is referring to the substantiation of Accelerating Phillips Curve Model in which the price acceleration is correlated with Unemployment and there is no trade-off between long-run Unemployment and Inflation and the second innovation is about the importance of expectations in the process of price setting. Phelps considered long-run Accelerating Phillips Curve Model defined by the following equation (Edmund Phelps, 1968):

$$\pi_t = \pi_t^e - aU^t = \pi_{t-1} - aU_t$$

$$\Delta\pi_t \equiv \pi_t - \pi_{t-1} = -aU_t$$

While both Friedman and Phelps are referring to the long-run Unemployment or the NRU (Natural Rate of Unemployment) as the rate the Unemployment is at equilibrium, independently of Inflation rate, later researches are concentrating on the concept of NAIRU (Non Accelerating Inflation Rate of Unemployment), altering Phelps equation as follows:

$$\Delta\pi_t \equiv \pi_t - \pi_{t-1} = -a\left(U_t - U^n\right)$$

The equation states that when the Unemployment reach NAIRU (which is by default 0 in initial Phelps equation) noted in the above equation with U^n, the change in the inflation rate is 0, with other words when the Unemployment reaches NAIRU, the inflation reaches the expected inflation, named by Phelps "lagging Inflation" (Edmund Phelps, 1968).

While the concepts of NRU (Natural Rate of Unemployment) and NAIRU (Non-Accelerating Inflation Rate of Unemployment) are used interchangeable in some formulations, those different concepts: while NRU is a microeconomic concept, with an unique state of equilibrium, based on rational behavior of people, being the equilibrium rate of long-run Unemployment, NAIRU is an macroeconomic concept, involving multiple states of equilibrium, being the rate of Unemployment when the Inflation tends to be stable.

Robert Lucas in 1973 and Thomas Sargent - Neil Wallace in 1975 offered a high importance to expectations, integrating the false perceptions of people who are not capable of making the

distinction between a real change of prices caused by demand and a change caused by monetary intervention. The authors argue that there is a correlation between Unemployment and Inflation if the monetary authority is able to produce unanticipated changes in price setting.

In 2000, George Perry estimates Phillips Curve by a model in which the parameters are allowed to vary over time. The author identified that the coefficient of expected Inflation was at low levels between 1950 and 1960, raised up to 1970 and decreased up to present.

George Akerlof, William Dickens and George Perry are proposing in 2006 a model which takes in consideration in the correlation between Inflation and Unemployment not how people forms expectations but how they use them.

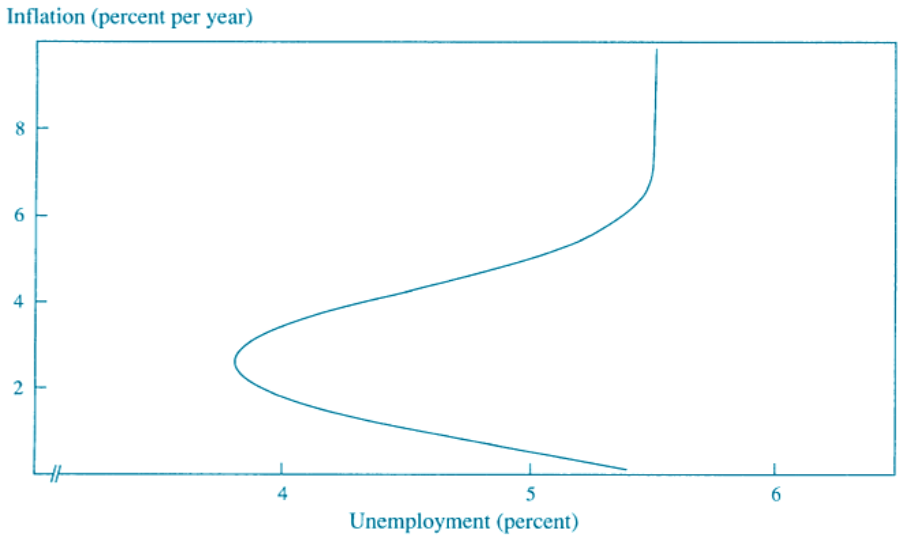

Figure 2. Phillips Curve proposed by Akerlof, Dickens and Perry in 2006

Authors suggests that there are 3 causes that contributes to the unconformity between econometrics models and economic reality:

* When the Inflation is at low levels, a significant number of people will not take it in consideration when setting prices or salaries.

* When the Inflation is taken in consideration, people are not using it as economists are supposing. The informal use of Inflation conducts to an incomplete representation of the expectations, affecting the aggregate relation between Inflation and Unemployment.

* The employees are perceiving the Inflation as an increase of prices and a reduction of their salaries rather than an increase of the nominal demand for their services so they will not take in consideration alternative opportunities as much as is supposed.

At low rates of Inflation, this has actually a positive effect in maintaining the Unemployment at low rates as due to the fact that the benefits are significant compared to the high objective or subjective costs with a complete rational behavior. When the Inflation raises, the risks with not using a rational behavior are increasing so people are more likely to take in consideration Inflation.

Daniel Kahneman and Amos Tversky argue that people are using a mechanism of decision editing by which they are taking in consideration only few factors they consider as having high importance, literally ignoring the other factors, considered irrelevant. Thus, when Inflation is at low rates, this is considered an unimportant factor to pay attention to consequences due to the fact that people have heuristic approaches in making decisions and they are not acting accordingly to a purely rational econometric model.

Robert Schiller, argued, based on researches, that there are high discrepancies between how economists believe people react and how people actually react. Two groups of people have been questioned, first group formed by economists and the second formed by people with no economics knowledge, challenging their behavior regarding the correlation between Inflation and Unemployment.

* 61% of the economists and 11% of the non-economists were agreeing with the affirmation: “the competition between employers will have as effect raising my salary. I could receive offers from outside the company and my current employer will raise my salary to keep me.” (Robert Schiller, 1997)

* 4% of economists and 26% of non-economists were agreeing with the affirmation: “high prices will creates extra profit for my employer who will be able to sell the products for more. This will not affect my salary.”

* 12% of economists and 77% of non-economists were agreeing with the affirmation: “Inflation is affecting my purchasing power. It makes me poorer”

Those results reveals that people are not perceiving macroeconomic processes as economists expects, existing numerous inconsistencies between economic theory and economic reality. In the same time, the inconsistency of Phillips Curve Model and economic reality is suggested to be caused by the “Unemployment hysteresis ” (Lucian Liviu Albu, 2004) referring to the fact that Unemployment is influenced by the past evolution and the changes are lasting, being difficult to return to anterior values, even when the factors causing the change are not acting anymore on Unemployment.

Phillips Curve has known numerous conceptual adjustments from its origins to present, being one of the main pillars of Homo Oeconomicus paradigm. Phillips Curve model has been adjusted, as if initially was suggested a negative correlation between Inflation and Unemployment, over time have included aspects such as NRU, NAIRU, expectations or incomplete rationality.

The problem rests on the incompleteness and inaccuracy of Phillips Curve model which needs to be adjusted so it could match the economic reality. The accuracy of the model will be tested so new perspective of development and improvement could arise for an enhanced precision.

Methodology and data sources

Objective

The objective of the study is to analyze the Phillips Curve Model in Romania for the period between January 1992 and December 2013 for observing the accuracy of the theoretic model with the economic reality and how bounded or incomplete rationality affects some economic processes and results.

Hypotheses

1. Homo Oeconomicus Model is not an accurate paradigm.

2. Phillips Curve is less representative to express the correlation between Inflation and Unemployment.

3. NAIRU is decreasing in contemporary period.

Limitations

There are limitations of the research which can influence the validity of hypothesizes demonstration:

1. Errors related with measuring Inflation and Unemployment. Those two variables can`t be quantified with maximum accuracy due to several factors such as: the difficulty to take in consideration all the goods and services for a complete aggregation of Inflation, the results are not obtained in real time, there are discrepancy between real economy and official statements provided by the existence of underground economy.

2. The transition period in Romania after 1989 has affected the optimum functionality of the market, at least in the first years, being registered high fluctuations regarding Unemployment and Inflation.

3. Unpredictability of human behavior, which in real economy is not aligned with a trend but varies, depending on endogenous and exogenous motivations, constraints, preferences and values.

Methodology

To observe the correlation between Inflation and Unemployment and to test the hypothesis has been conducted an econometric modelling of two series of data:

-Monthly Unemployment Rate and Monthly

-Inflation Rate in Romania for the period of January 1992 – December 2013. The source of the data is Romanian National Institute of Statistics.

Thus, the series have been analyzed to identify existent correlations, trends, cyclicity, skewness, kurtosis, seasonality, values distribution, stationarity, etc. In the same time, an econometric modelling has been conducted to observe the influence of independent variable on dependent variable by analyzing the regression and residuals through Hodrick-Prescott filter for NAIRU calculation and it has been achieved a state-space model through the application of Kalman filter to minimize the errors.

Series of data

It can be observed a transition from a very high Inflation in the first half of the period to a lower Inflation Rate with less inflections, in the second half of the period.

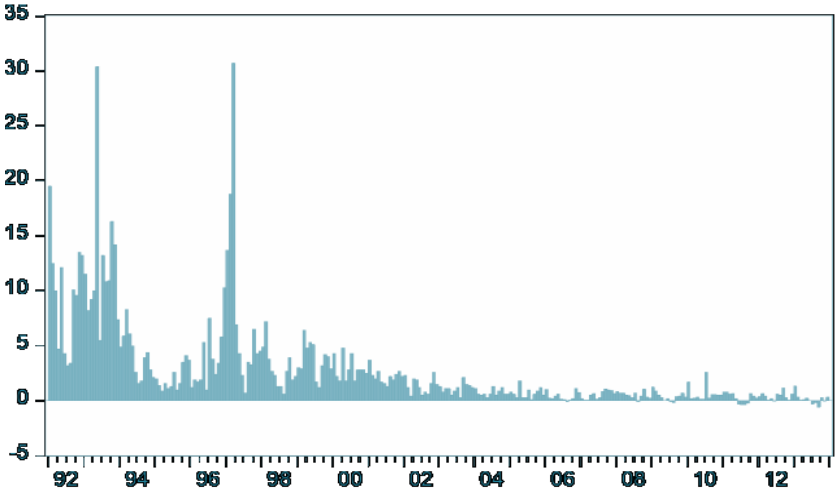

Figure 3. Inflation Rates in Romania between January 1992 and December 2013

As it can be observed from the Descriptive Statistics Results, the Mean is 2,692841 and the Standard Deviation is 4,181416. In the same time Skewness and Kurtosis results suggests a right skewness and a sharper distribution than Gaussian.

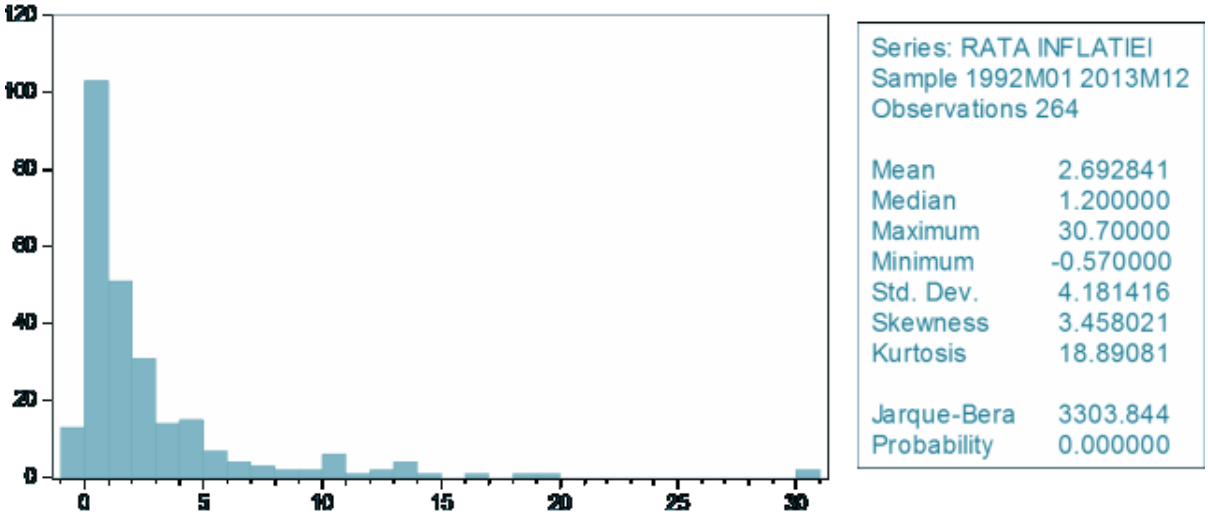

Figure 4. Inflation Rates Histogram and Descriptive Statistics Results

Regarding the second data series, Unemployment, it can be observed a transition from a very high Unemployment in the first half of the period to a lower Unemployment Rate in the period of economic grow, followed by increased values determined by economic crisis and a stabilization in the later period.

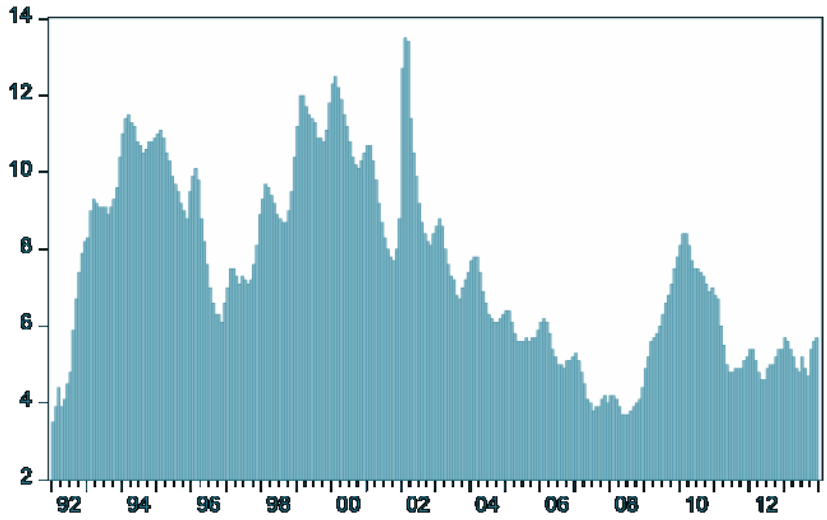

Figure 5. Unemployment Rates in Romania between January 1992 and December 2013

The Mean is 7.515530 and the Standard Deviation is 2,424641. In the same time Skewness and Kurtosis results suggests a light right skewness and a sharper distribution than Gaussian.

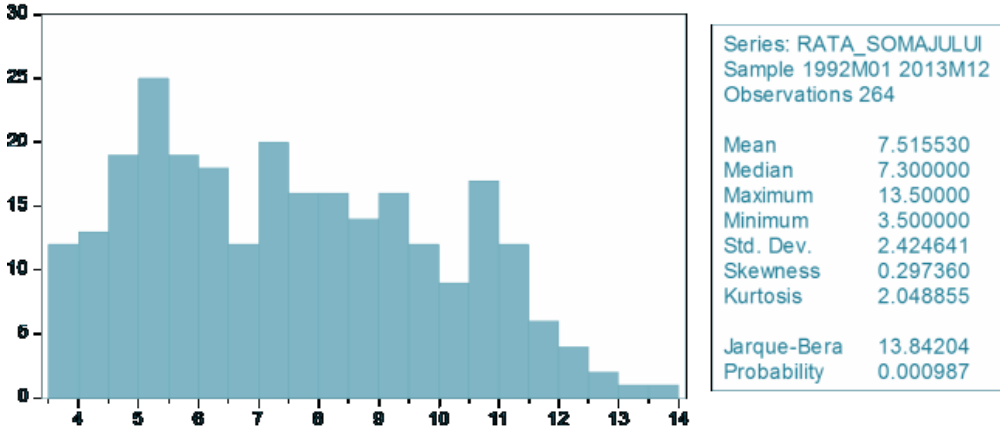

Figure 6. Unemployment Rates Histogram and Descriptive Statistics Results

Economic Modelling

The series has been interfered into a Scatter diagram for emphasizing the potential correlation between data.

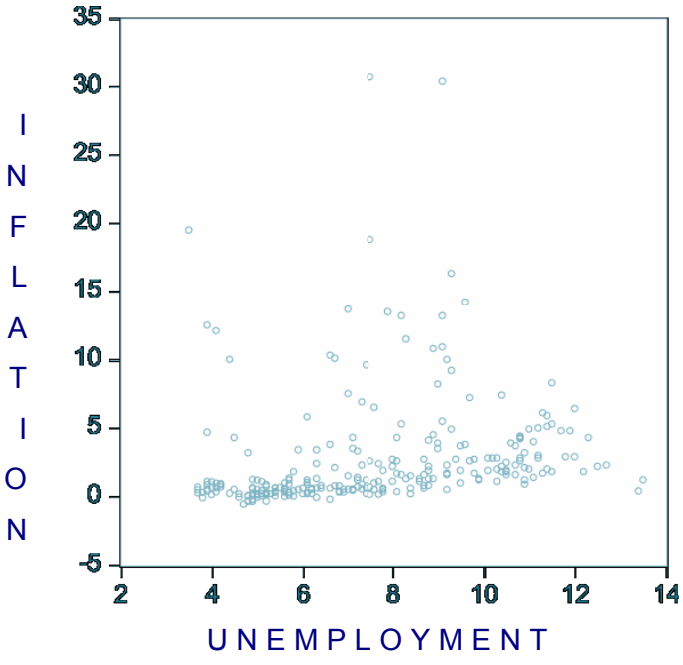

Figure 7. Scatter Diagram between Unemployment and Inflation

In order to test the link between the variables, it has been used the Phillips model proposed by Friedman and Phelps in an adjusted form. Thus, the Phillips Curve regression equation has the following form:

$$\pi_t = a + b\pi_{t-1} - c(U_t - U^n) + \varepsilon_t, t = 1,2,3...n$$

where π_t is the inflation at moment t, π_{t-1} is the expected inflation with the mention that in the hypotheses of the model is stipulating that the expectations on inflation are based on anterior inflation values, U_t is unemployment rate, U^n is NAIRU (Non Accelerating Inflation Rate of Unemployment), and a, b, c are the coefficients.

This model tries to estimate the influence Unemployment at moment t and expected Inflation (an anchor in moment t-1) have on Inflation at moment t. In the same time, there will be made an estimation of NAIRU for Romania in the period January 1992 and December 2013 to emphasize the level of Unemployment so the pressure from the labor market on Inflation to be null for the period of observation.

The hypotheses of the Regression model are the following:

H1: The regression model is linear in relation with coefficients

H2: The exogenous variables π_{t-1} and $U_t - U^n$ have nonzero finite dispersion

H3: The exogenous variables π_{t-1} and $U_t - U^n$ are not random

H4: The errors ε_t are random variables with null mean

H5: The errors are not heteroscedastic

H6: The errors are independent (the lack of error autocorrelation)

H7: The errors are normal distributed

For testing the hypothesis it has been used the “estimated output” results in Eviews software and it has been included the consistency with White test heteroscedasticity for an enhanced accuracy.

Results obtained

By running Hodrick Prescott Filter in Eviews on Unemployment, the cyclicity has been removed, being obtained the estimated values of NAIRU and the trend of its representation.

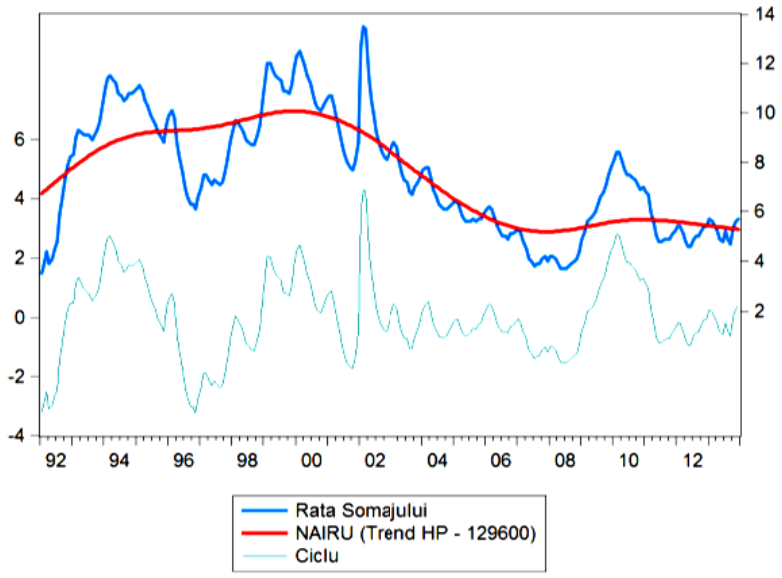

Figure 8. NAIRU Values in Romania between January 1992 and December 2013

It can be observed how NAIRU has been fluctuating in the analyzed period, being on a slope of decreasing.

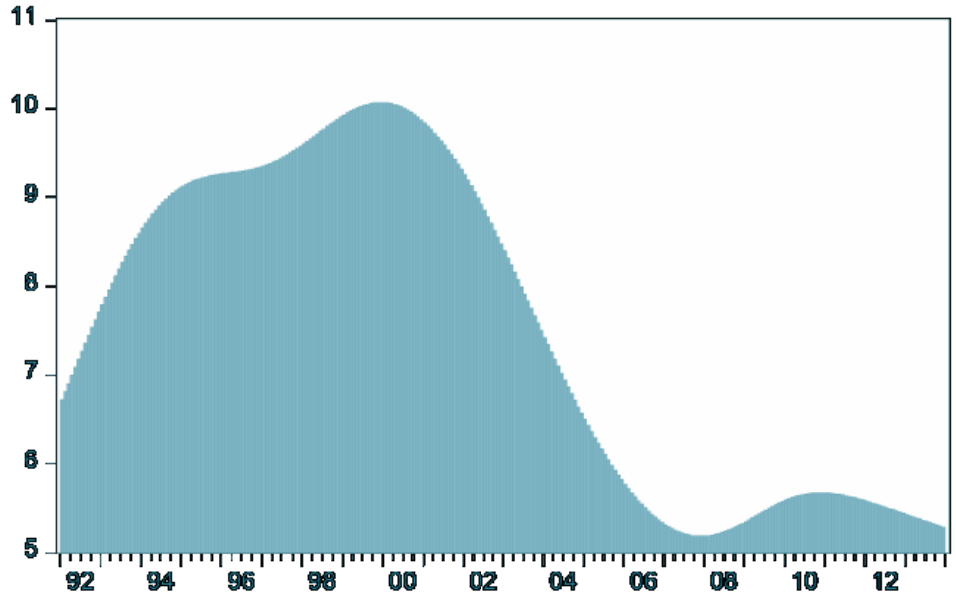

Figure 9. NAIRU decreasing in Romania between January 1992 and December 2013

As a result of running the regression equation on the series of Inflation, Unemployment and NAIRU, it is obtained the following estimated equation:

$$\pi_t = 0{,}765096057877 + 0{,}69005133286\ \pi_{t-1} - 0{,}0455545241596\ (U_t - U^n)$$

Thus, by interpreting the coefficients, taking in consideration the presented model, when unemployment = NAIRU, inflation is influenced by 0.765096057877 + 0.69005133286 of anterior inflation. With other words, in the absence of unemployment, inflation is influenced by 0.69005133286 of anterior inflation in addition to 0.765096057877.

For the estimated Inflation it has been made a residual analysis by running the specific function in Eviews, obtaining the below graph:

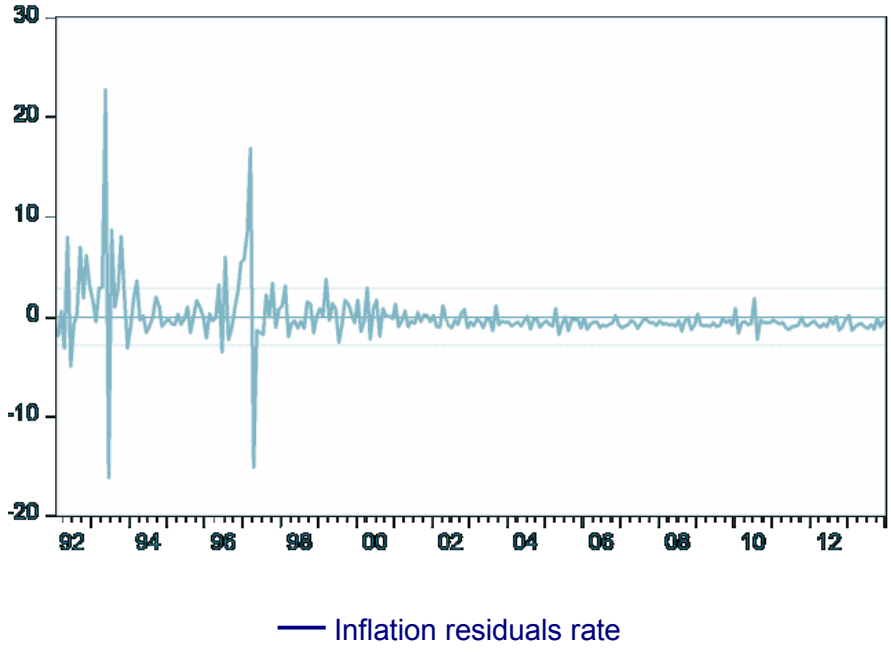

Figure 10. Residual Analysis of Estimated Inflation

In the same time, it has been a Scatter Diagram between the Difference between Unemployment and NAIRU and the Adjusted Inflation with Hodrick Prescott Filter, emphasizing a correlation similar to the one proposed by Akerlof, Dickens and Perry.

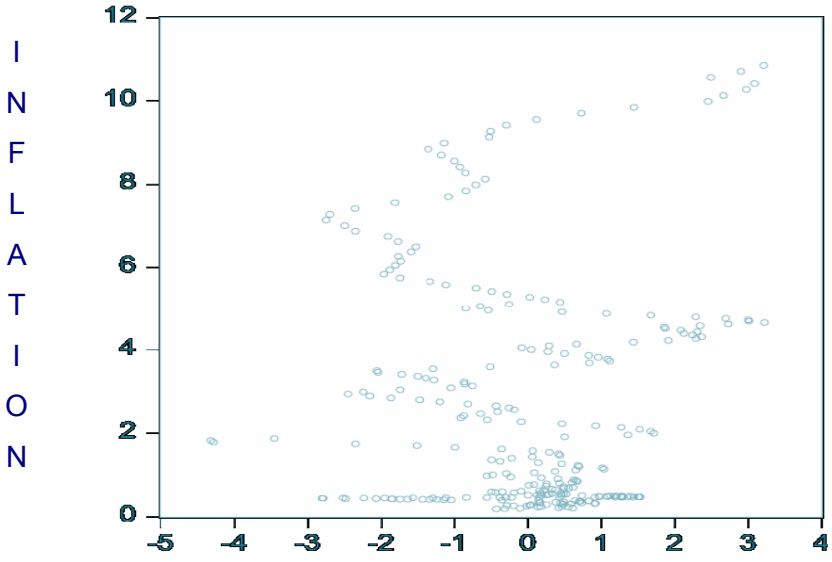

Figure 11. Scatter Diagram on the correlation between Unemployment, NAIRU and Adjusted Inflation

It has been achieved a Kalman state-space model to describe the relation between the measured values and the unobserved variables to minimize the errors through residual elimination. The equation of Eviews function was the next:

@signal Inflation_Rate = c(1) + c(2)*Inflation_Rate_lag1 + [var = exp(c(3))]

@signal Unemployment_NAIRU = - (Unemployment_rate – NAIRU) + [var = exp(c(4))]

@state NAIRU = NAIRU(-1) + [var = exp(c(5))]

param c(1) .0 c(2) .0 c(3) .0 c(4).0 c(5).0

obtaining the following result:

@SIGNAL Inflation_Rate = 0.762347880069 + 0.690852229057*Inflation_Rate_LAG1+ [VAR = EXP(2.08453788017)]

@SIGNAL Unemployment_NAIRU = Unemployment Rate - NAIRU + [VAR = EXP(-34.4975405202)]

@STATE NAIRU = NAIRU(-1) + [VAR = EXP(-0.326229760322)]

One-step-ahead inflation rate

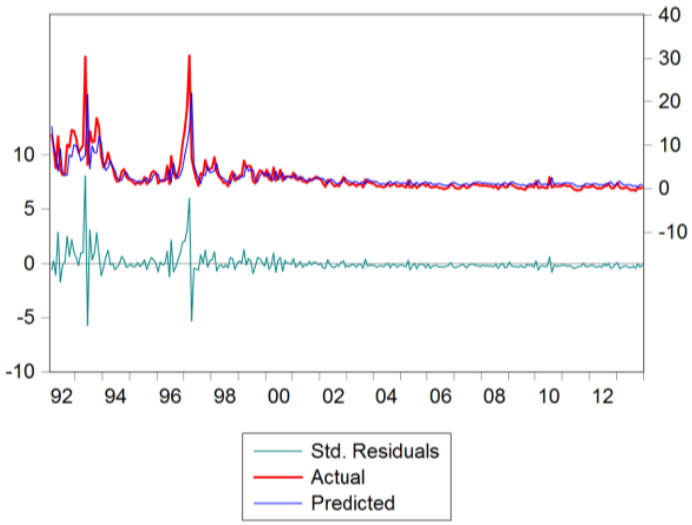

Figure 12. Kalman Filter Signal 1

One-step-ahead unemploymed rate

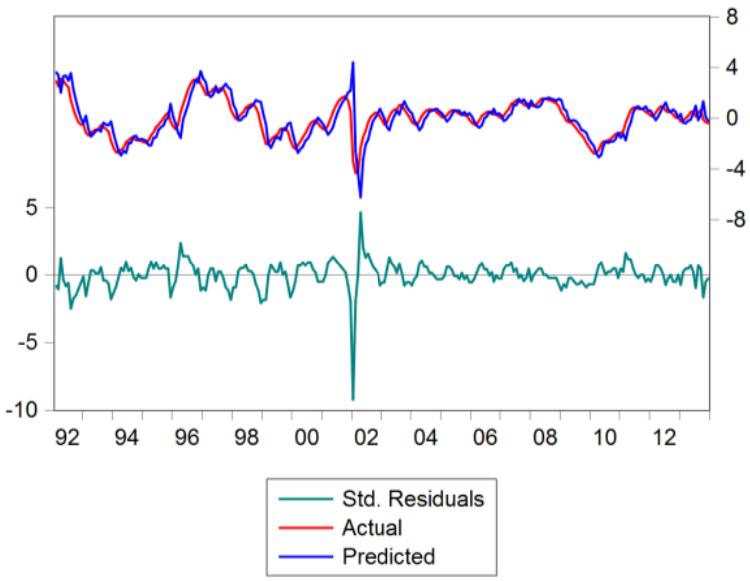

Figure 13. Kalman Filter Signal 2

Conclusions

Phillips Curve in its classical form is no longer representative due to transformations of the economic mechanisms, the relation between Inflation and Unemployment not being an inverse one from multiple causes such as Inflation expectations, Unemployment hysteresis but also the alterations of preferences and human economic behavior over time, later models being more accurate.

Due to the economic modelling it has been identified some correlations between Inflation, Unemployment and NAIRU which can be used in further research for predictions. It has been also observed a decrease of NAIRU for the analyzed period, confirming the initial hypothesizes.

Even if Phillips Curve classical model uses some Homo Oeconomicus characteristics to simplify the econometric modelling, this construction is not enough representative compared with the economic reality by not taking in consideration various unobservable variables that could explain the econometric errors of the model in predicting the correlation between Inflation and Unemployment.

Homo Oeconomicus paradigm in its current state is not a valid concept, being based on a series of elements such as perfect rationality, complete information and other presuppositions which are proved not to be just or in compliance with reality just in very few cases. Researches shows that the human mechanism of thinking and taking decisions is different from what economists assume, for example, the latter are not taking in consideration important aspects such as the preference of people for using mental shortcuts and decisional patterns, the importance of unconscious mind in dictating to conscious rational behavior, etc.

Inflation and Unemployment are interfering through a correlation but current econometric models are not taking yet in consideration all the unobservable and latent factors that influences the relation between those two indicators, existing a need of a more interdisciplinary approach.

Research Perspectives

As a result of the results, there could be taken in consideration the following research perspectives:

- An in depth analysis of Homo Oeconomicus fundamental pillars to observe their validity and to identify new approaches to explain the current economic phenomena.

- Researching and investigation of the concept of Unemployment hysteresis for analyzing the process and implications for explaining the economic aggregates and mechanisms.

- An in depth investigation of identifying and quantifying latent and unobservable variables which influence the economic processesand integrate into an econometric model by applying the Kalman filter for an enhanced prediction.

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HOMO OECONOMICUS NOVUS AND THE ILLUSION OF SUSTAINABILITY

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Abstract

In a more and more preoccupied society for ensuring sustainability at all its levels (environmental, economic, social and cultural) the question is if a sustainable development could be reached through the primary or updated model of Homo Oeconomicus.

If sustainable development means to use the resources without affecting the capacity of the next generations to satisfy their needs and Homo Oeconomicus purely rational primary model on one hand suggest that people follow only their own interest and on the other hand, Homo Oeconomicus updated model which suggests that people decisions are based on irrational and unconscious mechanisms, the issue rests on the real possibility of sustainability to be achieved.

The argument of the paper is to identify how sustainable development is affected by human economic behavior, to which extend we can speak about the illusion of sustainability and what could be alternative approaches to attain sustainability.

Keywords: Homo Oeconomicus, Rationality, Irrationality, Sustainability

JEL classification: A14, Q01, Q56

Introduction

During the era of consumerism and constant preoccupation of the economic agents for an unrestricted economic grow in conditions of limited resources, the necessity of a new approach emerges, one that should take in consideration the degree of limited natural resources, the community, society, culture and ensuring the satisfaction of the current needs without transferring the costs of present actions to future generations: sustainable development and resilience-thinking as a systems adaptation to cycles of changes and shocks absorption (Brian Walker and David Salt, 2012).

The paper is trying to analyze the concept of sustainability correlated with the human economic rational and irrational behavior concentrated under the primary and updated current model of Homo Oeconomicus in order to observe if sustainable development is possible and what are the consequences of people rational and irrational behavior on the main pillars of sustainability: economic, cultural, social and ecological.

Description of the problem

Homo Oeconomicus

The Homo Oeconomicus paradigm has been used in XIX century under the name of “Economic Man” by John Stuart Mill who considered that the main objective of Homo Oeconomicus is to satisfy his needs at the highest level with minimum efforts or costs. (John Stuart Mill, 1836). Even if the Homo Oeconomicus term was used only after 1836, it has its origin back to the XVIII century, supported by the ideas David Ricardo and Adam Smith, the latter sustaining in “The wealth of Nations” that “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest” (Adam Smith, 1776).

It has been sustained that people have a selfish, pure rational, own-interested behavior and they show an intense aversion to work. Even if he was one of the pioneers of conceptualizing Homo Oeconomicus, Adam Smith was not so radical regarding Homo Oeconomicus traits, suggesting in “The Theory of Moral Sentiments” that people have sympathy for the wealth of others and the decisions are just the results of the continue fight between “passions” and “impartial spectator”.

In the last couple of centuries, multiple economists such as Leon Walras, Vilfredo Pareto or Lionel Robbins have materialized mathematic models based on the hypotheses of rationality of Homo Oeconomicus. Thus, Lionel Robbins` theory of rational decision become dominant in the mainstream economics through the acceptation that Homo Oeconomicus acts perfectly rational with the objective of his own interest of wealth.

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Homo Oeconomicus model simulates the adaptation of the means to the objectives, obtaining maximum utility or profit with minimum effort or cost, emphasizing his capacity of acting rational in achieving short terms objectives but doubting the sustainability of his behavior. The pragmatic characteristic of Homo Oeconomicus sustained by the continuous chase of utility and optimum on short-term creates an impossibility for a sustainable development on long-term.

New approaches are considering totally mistaken Homo Oeconomicus model based on perfect rationality, selfishness, complete information and stable preferences and there are efforts on identifying more valid explanations of human economic behavior. Researches such as Daniel Kahneman, Amos Tversky or Dan Ariely are using interdisciplinary approaches from psychology, sociology and economics to find the root causes and comprehensive explanations to people irrational behavior.

Homo Oeconomicus model has to be updated in order to make use of the new research findings in various relevant domains that could explain a series of economic mechanisms and human behaviors. It is obvious that people are not acting fully rational, being influenced by a multitude of internal and external factors, but in the same time there is a stringent need for a more accurate prediction of economic processes which is requiring making the irrational and unconscious behaviors strongly predictable (Dan Ariely, 2008).

Sustainability

Starting with the second half of the XX century, there was a global movement concerning the issues created by the irreversible reduction of economic resources potential, as a result of human development activity (Emil Dinga, 2011) resulting in the conceptualization of sustainable development, defined in 1987 by United Nation Brundtland Commission in “Our common future” Report as “using present resources without affecting future generations of satisfying their needs”

David Pearce defines sustainability as “being preoccupied of social development by not transferring the costs of the development to future generations or there are efforts made to compensate such costs” (David Pearce, 1989) emphasizing the concepts of “strong sustainability” and “weak sustainability". While strong sustainability stipulates that natural capital (natural resources, fossil fuels, ecosystems and biodiversity, etc.) and human capital (knowledge, labor, infrastructure and facilities, etc.) are complementary but not interchangeable, weak sustainability sustains that natural capital may be reduced as long as human capital is increased maintaining the same overall stock of capital, still achieving sustainable development.

There is a need of analyzing if strong sustainability is a realistic achievement and even if weak sustainability is possible by comparing the value of natural capital transferred into human capital as there are inconsistencies in measure the natural capital transformed into human capital and how this fluctuation contribute to sustainability.The issue rests of correlating the concept of sustainability with the human economic individual behavior which is far of being aggregated into a global economic behavior addressed in preserving resources for future generations through a sustainable development, in an era of consumerism, selfish behavior, heterogeneity of economic growth, unsolved primary issues such as hunger, poverty or diseases, the increased sophistication of human secondary needs, motivations and preferences.

Sustainability key events Timeline (next page, figure 1)

Homo Oeconomicus Primordialis

The concept of Homo Oeconomicus has been used to express the aggregate behavior of people concerning economic decisions.

In this paper, I propose two concepts: Homo Oeconomicus Primordialis and Homo Oeconomicus Novus. I define the concept of Homo Oeconomicus Primordialis as the initial version of Homo Oeconomicus proposed by mainstream economics, outdated to current economic reality and various domains research findings, being represented by the following:

1. Selfishness
2. Perfect Rationality
3. Stable Preferences
4. Complete Information
5. Utility Maximization

1.Selfishness

Homo Oeconomicus Primordialis are following their own interests, no matter of consequences to the other members of community and without considering negative externalities produced by their decisions. This trait is not explaining altruistic human behaviors such as charity, volunteering, sacrifice acts or unconditional helping. In the same time Homo Oeconomicus Primordialis selfishness trait is not explaining self-destruction acts such as substance abuse, suicide or procrastination.

2. Perfect Rationality

Homo Oeconomicus Primordialis are pure rational agents, using logical cost-benefit analyses to take the best decisions and the markets, companies, public institutions and other economic aggregates are acting rational, reaching specific states of equilibrium through rational efficiency. This characteristics is not taking in consideration that in the majority of the cases, emotions dictates to reason, decisions are based on feelings, and our unconscious mind transmits decisions to our conscious mind, the latter trying only to find rational arguments for the decisions, even when the behavior is purely irrational. In the same time, people make decisions based on mental shortcuts, dominant factors and hidden motivations.

3. Stable Preferences

Homo Oeconomicus Primordialis have stable preferences and their behavior depends only on macroeconomics changes. This trait is not quantifying how a change to people behavior is caused by an alteration to individual preferences and not necessary to a macroeconomic change. As an example, it is possible that the decrease of oil consumption to be caused by price increase but in the same time, the decrease of oil consumption could happen due to the alteration of individual consumers as a result of the internalization of the effects that oil consumption has on global warming (Stefan Schneider, 2010). In the same time, it needs to be taken in consideration *"the herd effect"* (Ulrich Fehl, 1967) by which people act in a specific manner just to integrate and resonate with a specific group.

4. Complete information

Homo Oeconomicus Primordialis benefits of complete information which they can fully analyze in order to take the best decision. This characteristic is not taking in consideration that people are cognitive limited, they are not able to make an extended number of mathematical calculations and they are not able to accumulate all the information they interact with. People are continuously bombarded with information, being exposed to an extended volume of informational noise, unable in making fully rational decisions.

5. Utility Maximization

Homo Oeconomicus Primordialis are looking for maximum benefits with minimum costs, searching for utility or profit maximization. This trait has tautological valences due to the fact that by not being able to accurately observe people internal motivations, every behavior could be seen as utility maximization. As an example, it could be said that smokers are maximizing their utility because the time from life duration lost due to smoking doesn`t worth the cost of quit smoking. In the same direction, we could see weddings happening when the benefits of a person being married are higher than the benefits of being unmarried (Gary Becker, 1976).

As it has been highlighted above, Homo Oeconomicus Primordialis is the first conceptualization version of Homo Oeconomicus, which is not taking in consideration *the evolutions* of the concept and the new researching facts in fields such as psychology, sociology and economics. There are two important aspects to be considered:

1. Homo Oeconomicus Primordialis is the brute form of Homo Oeconomicus from a conceptualization point of view which needs to be adjusted with the evolved form of Homo Oeconomicus: Homo Oeconomicus Novus, which is the refreshed form of Homo Oeconomicus taking in consideration the current economic reality and validated characteristics of rational, irrational, arational, conscious, unconscious and aconscious human economic behavior.

2. Homo Oeconomicus Novus is not a concept to match mainstream economics only but an interdisciplinary approach to human economic behavior so there could be identified a series of

traits, characteristics, principles, values and motivations that could explain apparently unpredictable mixture of rational, irrational, conscious and unconscious human economic behavior.

Homo Oeconomicus Novus

I define the concept of Homo Oeconomicus Novus by the new, fresh and updated version of Homo Oeconomicus Primordialis, taking in consideration the following traits:

1. Arrational Behavior
2. Aconscious Thinking
3. Inclination toward Possession
4. Social Validation
5. Pursuit of Happiness

1. Arational Behavior

Homo Oeconomicus Novus is having an arational behavior as being described by the result of a non-rational cognitive process. Homo Oeconomicus Novus arrational behavior is caused and explained by a set of primary emotions (Rosalind Hursthouse, 1991) such as love, hate, joy, rage, sorrow, shame, pride, courage or fear which take over on human decision system and exclude a rational decisional process. The Homo Oeconomicus Novus behavior is based on an arational decisional mechanism by cognitive representations and actional transpositions, autonomous of rational filters with the purpose of solving an aconscious perceived problem. Rational thinking is only the interface between aconscious mind which takes the decisions, and our behavior, the role of reason being of creating logical arguments that could explain our action in a manner validated by social norms, beliefs or values and to confer the illusion of control over decisions.

2. Aconscious Thinking

Homo Oeconomicus Novus uses a non-rational thinking process based on automatic mental processes in our aconscious mind that are using a high volume of information gathered from past experiences, current perceptions and sensations, motivations, desires, mental anchors and connections between cognitive units, in order to take a decision that match the context in correlation with our internal cognitive variables. Now days we are exposed to 2.5 quintillion bytes of information daily (Leonard Mlodinow, 2012), quantity of information which is far of being processed by human brain conscious capacity. Human brain is processing 11 million bytes of information per second only from sensorial system at unconscious level and is able to conscious process information of only 17-50 bytes per second which is making human rational decisional mechanism unable to promptly cope with complex variables.

3. Inclination toward Possession

Homo Oeconomicus Novus have a natural tendency toward possession, including but not limited to wealth, health, knowledge, power, virtue and no matter of cultural, social or personality differences, people`s decisions that govern their life are directed to achieve the possession of sources of gratification. While we evolve as social and cultural subjects, or needs and desires of satisfaction are changing, becoming more and more sophisticated and more and more related to what other possess. We are in an era of consumerism, globalization, information burst, online social media boom and secondary needs satisfaction so the inclination toward possession is stringently present in every single person under various forms.

4. Social Validation

Homo Oeconomicus Novus is a social animal (Bryan Morris, 2014) having a native predisposition to belong to a group as they learned that on one hand they can save resources in making a decision and they learned that they are safer if they follow the crowd. People are also inclined to adjust decisions depending on social norms and other people expectations, being concerned about how they are perceived by others. Homo Oeconomicus Novus is looking for social validation and most of their decisions are based on how they report to others. This reaction is very likely to have its roots far back in human evolution when people`s safeness was not easy to be maintained and by coordinating with the group they could offer a cohesive response to the aggressive factor – a similar behavior is used by herd animals to protect of predators. We are assisting to a *"de-individuation process"* (Diener, Fraser and Beamer, 1980) in which when people are found in a group, they become less self-aware and less concern about how they are perceived as individuals,

being more anonymous but being resonant with the group identity. Practically, the individual identity is transferred to the group identity which acts as a whole and the repercussion are very difficult to be reallocated to each individual.

5. Pursuit of Happiness

Homo Oeconomicus is searching for happiness which embrace different forms from individual to individual, ideally referring to a state of flourishing and living well by achieving a series of goals such as wealth, knowledge, health, power, virtue, etc. New researches shows that money are the fuel for happiness up to a specific level (approximatively $75 000 annually) above which the increase level of happiness is insignificant or even decreasing (Daniel Kahneman, Angus Deaton, 2010). This level is considered to be the optimum, people earning below and above having similar symptoms of unhappiness. Homo Oeconomicus Novus take decisions in concordance with their happiness standards and objectives, very often reported to the social and cultural norms and not to real individual achievements that could enhance the level of happiness.

The Illusion of Sustainability

Sustainable development in the strong form of sustainability which considers that natural and human capital are complementary but not interchangeable cannot be achieved under neither Homo Oeconomicus Primordialis nor Homo Oeconomicus Novus model.

One of the most important trait of Homo Oeconomicus Primordialis is selfishness, accordingly to the model, people being interested only for their self-interest and to ensure a competitive advantage compared with the other members of society who compete for the same limited resources. In this regard, the un-updated Homo Oeconomicus Primordialis is in contradiction with what sustainable development means, as Homo Oeconomicus Primordialis misses an important component that is necessary to ensure sustainability which is altruism. If people would be preponderantly altruistic there could be real ways of satisfying current needs without affecting future generations to satisfy their own needs. Homo Oeconomicus Primordialis is not concern with resources conservation or consumption tempering if this is contrary with their own needs and interests, as they are focused on utility and profit maximization.

It is obvious that sustainability cannot be achieved through ensuring the adaptation of the means to scopes but by the preoccupation for the quality of life of all the current and future members of society with considerations for social, cultural and ecological pillars of sustainability apart from economical pillar.

In the same direction, neither Homo Oeconomicus Novus is not able at this level of evolution to cope with the parameters of sustainability due to their arational behavior, need of social validation, unconscious thinking, inclination towards possession and continuous search for happiness which in most of the cases in counter-sustainable. In order that sustainability to be realistic, there is an important aspect that should be achieved: perfect rationality which is referring in the context of sustainability to people capability of taking the best decisions for the current context integrated into a global future frame. As it has been demonstrated in the majority of the cases, human decisional system is not rational and in our conscious control and above all is influenced by a series of internal and external factors that are unknown to us yet. Homo Oeconomicus Novus cannot be able of an integrated sustainable development due to several factors which makes out of the concept of sustainability unrealistic and illusory.

1. Human Cognitive and Behavioral Mechanisms

People are having an arational behavior which is based on aconscious and emotional decisions and cannot be in our control only in a small part. People are not making decisions to cope with the benefits of people they do not know personally or sympathies, being primarily preoccupied by the benefit of themselves and people they have affinities with, through an enormous level of consumerism. The decisional cognitive mechanism is based on unconscious thinking which takes its input from past experiences, memories, desires, motivations, sensorial system concerning primarily individual`s conservation and less from an imposed set of actions related to the conservation of others.

Cognitive biases caused by bounded rationality (Simon Herbert, 1991), cognitive dissonance (Festinger, 1957), loss aversion (Kahneman, 1979), cognitive heuristics (Amos Tversky, 1974) and similar other factors are obstacles in transforming sustainability mirage into a reality. The need of

social validation prevents a sustainable behavior in the majority of cases, people taking decisions based on direction given by the majority and once the majority of individuals are not adopting a sustainable behavior, the group as a whole will not take sustainable actions. We can go even further and affirm that global sustainability could be achieved only through local sustainability so all the premises of sustainability needs to be met in each and every single individual so we can say we reach the starting point of sustainability from where needs to be maintained or enhanced.

2. Incomplete and Ignored Knowledge

We live in an era of bursting information, online interaction and sensational speed of accessing information but this is not enough for a sustainable development. It is true that people have, apart from the situations where the current common knowledge is missing on the subject, the possibility of accessing relevant information in order to make sustainable decisions but due to human incapacity of conscious processing a high volume of information and their cognitive mechanisms of making decisions based on few dominant or important factors and ignore the rest of factors, subjectively considered unimportant, it leads to decisions far from sustainable development. There are unsolved problems due to lack or incomplete knowledge or knowledge asymmetry and until primary problems of humanity such as hunger, poverty, diseases or conflicts are not addressed with valid solutions, sustainable development actions are in vain. In the same time the lack of knowledge is limiting even more the available natural and human capital. With other words, the lack of knowledge is preventing the sustainable compensation of the reduction of natural capital with the increase of the human capital.

3. Increasing Level of Entropy

Entropy measures the level of unavailable energy in a system (Nicholas Georgescu-Roegen, 1971) so a system with a high level of entropy imply a high level of unusable captive energy, while a system with a low level of entropy imply a high level of usable and available energy. The entropy entail the principle of irreversibility, the entopic level of the universe continuously growing from the temporal state of low entropy to the temporal state with higher entropy (Emil Dinga, 2009), showing the direction of time. Theoretically a sustainable development would involve that the entropy of the system formed from ecological, economic, social and cultural environments to be lower than the cumulated entropy of each subsystem, which is very unlikely to happen due mainly to the inclination of the universe to create disorder through natural processes of diffusion and disintegration contrary to the orientation of people to create order by transforming natural and human capital into final products with the cost of raising the overall level of entropy and diminishing the level of available energy for future generations. While through our current processes we are continuously increasing the level of overall entropy, we can`t achieve a sustainable degree of our development.

Conclusions

In the mainstream economics, Homo Oeconomicus paradigm has a central place trying to explain a series of economic mechanisms. We can discuss about a conceptual evolution from the initial incomplete and erroneous paradigm introduced by John Stuart Mill which I named Homo Oeconomicus Primordialis and is based on selfishness, pure rationality, complete information, stable preferences and utility maximization to an updated version, able to comprehensively explain economic individual behaviors, which I think it should be called Homo Oeconomicus Novus, based on arrational behavior, aconscious thinking and decisional mechanisms, inclination towards possession, social validation and pursuit of happiness.

Neither Homo Oeconomicus Primordialis nor Homo Oeconomicus Novus in the presented form, could be an integrated part of a sustainable development due to specific characteristics of each model and factors such as human cognitive and behavioral mechanisms, incomplete and ignored knowledge or increasing level of entropy, making form sustainability just an illusion without a real possibility of being reached.

In conclusion, Homo Oeconomicus Primordialis model has been started to be updated and refreshed with a new paradigm: Homo Oeconomicus Novus as a comprehensive and valid approach to explain human economic behaviors. In the same time, sustainable development, which is a desirable scope for the humankind, is unlikely to be attained due to several gaps of the concept and various incompatible, non-adjustable factors.

Research Perspectives

There is a stringent need of continuing to fundament Homo Oeconomicus Novus paradigm to a more profound level which could reveal a more accurate model of prediction for the human economic individual behavior.

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CONSIDERATIONS ON ECONOMIC DEVELOPMENT OF ROMANIA'S CENTRAL REGION

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Abstract

This paper analyzes the economic state of the Central Region of Romania in the period 2007-2012 and estimates the situation for 2015-2017. The analysis is based on the statistical and regional indicators, the most significantly being GDP, turnover for local units, gross investments and net investments. GDP is the main indicator which emphasizes the development level of the Region. Central Region of Romania is very attractive for investments because they large economic potential. This research used statistical database. The results consists into analyses, interpretation of current data, and, also, into forecasting analysis.

Keywords: Center Region, GDP, investments, regional development, turnover

JEL classification: O11; O18; Q01

Introduction

The Romania's Central Region Regiunea has 34100 km^2 that means 14,3% of Romania's area. The Region contents six counties such as Alba, Brasov, Covasna, Harghita, Mures si Sibiu (Otiman, P.I., 2006, p.243). Currently, in Romania there are significant gaps between developing regions and counties that are part of the same region. As a result of socio-economic analysis were released found that, in the Central Region differences between counties are significantly lower compared to other regions. In this region there are three counties with more than 100,000 employees (www.mytex.ro). It requires a single specification, that there are gaps in wages. It can be said that the Central Region is one of the most balanced regions of our country, having three sectors, namely: primary; secondary; tertiary. Currently, the tertiary sector is in the process expansionary demonstrated, especially the significant contribution of services to Gross Domestic Product (www.adrcentru.ro).

The economy of the region was developed as available mineral resources have been subject to exploitation, contributing to the achievement of profitable economic activities.

Development Centre Region depends on attracting FDI (Investments Direct Funds). According to a study by the National Bank of Romania, the Central Region was the second top choices of foreign investors after the Bucharest-Ilfov Region. In 2012, this region has attracted 7.8% of FDI. At the end of this year FDI stock was 4.625 million Euro (www.bnr.ro). The major investors are from the Netherlands, Austria, Germany and France. In order to increase foreign investment is required primarily improving legislation. (Anghelache, C., 2008, p.418).

Methodology and data sources

To realize this research were used data from the National Institute of Statistics, National Forecasting Commission and the National Bank of Romania. Were consulted several books, studies, reports and journals. Economic development of the Central Region was highlighted on the basis of relevant indicators, such as regional GDP per capita; the turnover of active local units, gross and net investment. Analysis of key indicators was performed using the usual statistical methods.

Results obtained

Gross Domestic Product is the most significant macroeconomic indicator, as measured on the one hand, economic activity and growth on the other hand and according to it, the long-term investment plan is forecasted (www.ziare.com). It highlights the purchasing power and market value of goods and services produced in a country. Analysis is performed in the national economy primarily based on the size of the indicator. It is preferred to be larger this indicator. In a stable economy optimal

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growth is 3% per year. If the growth is greater than, is required increasing of benchmark interest by the Central Bank (www.conso.ro). Hence, the national GDP is determined, as value, by the regional evolution of its. At the GDP regional level are many differences.

In the table 1 are presented the GDP evolution on the Region and counties.

Table 1

Evolution of GDP in the Central Region, period 2007-2012

- million lei current prices-

No.	Specification	2007	2008	2009	2010	2011	2012	2012/2007 (%)
1.	*TOTAL REGION*	49416.7	57586.8	55178.7	57648.9	61177.2	67240.4	136.0
2.	ALBA	8000.7	8777.8	8605.9	8947.1	9464.1	10375.2	126.7
3.	BRASOV	14160.4	16822.9	16633.7	17438.8	18585.6	20474.7	144.5
4.	COVASNA	3540.4	3993.2	3665.5	3790.4	3988.8	4357.2	123.0
5.	HARGHITA	5248.1	6000.7	5683.3	5891.7	6209.5	6791.3	129.4
6.	MURES	9440.8	10850.8	9689.3	10100.1	10687.7	11740.2	124.3
7.	SIBIU	9026.3	11141.4	10901.0	11480.8	12241.6	13501.9	149.5

Source:- Romanian Statistical Yearbook 2012, National Institute of Statistics; Highlights regional economic and social Territorial Statistics, 2010, 2011, 2012, National Institute of Statistics; National Forecasting Commission - Projection of the territorial economic and social indicators till 2017, November 2013

-Own calculations

In the period 2007-2012, GDP increased with 36%, due the functioning of many activities and investments. The most increase is in Sibiu (+49.5%) and the smallest is in Covasna (+23%).

In the table 2 is presented the GDP forecasting evolution for 2015-2017. According to data, in 2015-2017, GDP will increase with 11,4%. Also, will reduce the the differences between counties, in terms of increase the GDP from 10.8% to11.8%. Most representative indicator for achieving a more realistic economic analysis of the Centre Region is GDP per capita. It is known that the analysis of GDP / capita for a period highlights a tendency of polarization of the richest and the most disadvantaged regions (Istudor, N., 2006, p.75). It is necessary to remember that GDP / capita is an indicator representing the information concerning the state of the economy in a given region, since it is not determined by differences that occur between regions population (Beciu S., 2013, p.48).

Table 2

Forecasting on GDP in the Central Region, period 2015-2017

- million lei current prices-

No.	Specification	2015	2016	2017	2017/2015 (%)
1.	*TOTAL REGION*	80390	84794	89605	111.4
2.	ALBA	12476	13134	13848	110.9
3.	BRASOV	24398	25760	27258	111.7
4.	COVASNA	4920	5172	5452	110.8
5.	HARGHITA	7750	8157	8602	110.9
6.	MURES	15025	15848	16747	111.4
7.	SIBIU	15821	16722	17697	111.8

Source: - National Forecasting Commission
- Projection of the territorial economic and social indicators till 2017, November 2013;
- Own calculations

The evolution of GDP/capita is presented in table 3. According to data published by the National Forecasting Commission, GDP / capita at regional level increased from 5867 euro / capita (2007) to 6378 euro / capita (2012). Regional growth was 8.7 percentage points during the period. The most significant increase was in Brasov county, in 2012 (+14%) compared to 2007. Opposite is Covasna county where in 2012 was a decrease of 1.2 percentage points.

Table 3

Evolution of GDP/capita in the Central Region, period 2008-2011

-euro/capita-

No.	Specification	2007	2008	2009	2010	2011	2012	2012/2007 (%)
1.	*TOTAL REGION*	5867	6197	5158	5427	5759	6378	108.7
2.	ALBA	6374	6374	5434	5709	6057	6701	105.1
3.	BRASOV	7144	7656	6570	6923	7364	8162	114.2
4.	COVASNA	4749	4863	3884	4048	4264	4696	98.8
5.	HARGHITA	4830	5012	4132	4308	4535	4996	103.4
6.	MURES	4863	5069	3937	4135	4380	4850	99.7
7.	SIBIU	6392	7142	6051	6412	6837	7595	118.8

Source: National Commission for Prognosis, June 2013

Another county in which there was a decrease in 2012 compared to 2007, is the Mures County. This decrease is not significant (-0.3%).

According to data provided by Eurostat in 2008, GDP / capita in the Central Region was 11,250 euro, expressed in standard purchasing parity. The recorded value of GDP / capita was 44.8% of the EU average (www.adrcentru.ro). In 2011, GDP / capita in the Central Region increased compared to 2008, reaching to 11,400 euro / capita (www.romanialibera.ro).

In table 4 is presented a forecast of GDP / capita for the period 2015-2017. Un alt judet in care s-a inregistrat o scadere in anul 2012 fata de anul 2007, este judetul Mures. Aceasta scadere este nesemnificativa (-0,3%).

Table 4

Forecasting on GDP/capita in the Central Region, period 2015-2017

-euro/capita-

No.	Specification	2015	2016	2017	2017/2015 (%)
1.	*TOTAL REGION*	7282	7691	8200	112.6
2.	ALBA	7776	8218	8763	112.6
3.	BRASOV	9241	9771	10426	112.8
4.	COVASNA	5082	5353	5689	111.9
5.	HARGHITA	5458	5746	6104	111.8
6.	MURES	5933	6265	6682	112.6
7.	SIBIU	8441	8922	9520	112.7

Source: National Forecasting Commission - Projection of the territorial economic and social indicators till 2017, November 2013

In 2017 is expected an increase to GDP/capita till 8200 euro. This increase is based on foreign investments and on competitiveness of tertiary sector.

In table 5 are estimates of GDP for the period 2015-2017. To realize an economic analysis on the national and regional level are necessary studies of the relative evolution of GDP.

Table 5

Estimates of real GDP growth in the Central Region, period 2015-2017

-%-

No.	Specification	2015	2016	2017
1.	*TOTAL REGION*	2.4	3.0	3.3
2.	ALBA	2.2	2.8	3.0
3.	BRASOV	2.6	3.1	3.4
4.	COVASNA	2.1	2.7	3.0
5.	HARGHITA	2.3	2.8	3.1
6.	MURES	2.2	3.0	3.3
7.	SIBIU	2.6	3.2	3.4

Source: National Forecasting Commission - Projection of the territorial economic and social indicators till 2017, November 2013

After analyzing the real GDP growth rate for the period 2015-2017 are found both regionally, and at the county level, a tendency to be more dynamic (National Strategy for Regional Development, 2014-2020, Bucharest, 2013, p33, online version).

Table 6 shows the evolution of turnover in local units active in the Central Region in 2007-2011. Turnover is an important indicator since we're showing all revenues from sales of active local units and the execution of works and services. It can be seen in the Central Region, an increase in turnover in 2011 (+ 31%) compared to 2007 The most significant growth was registered in the county of Mures (+ 40.2%) in 2011 compared to in 2007.

Table 6

Evolution of turnover in local units locale, period 2007-2012

- million lei current prices-

No.	Specification	2007	2008	2009	2010	2011	2011/2007 (%)
1.	ROMANIA-TOTAL	772262	959414	850834	903238	1007151	130.4
2.	MACROREGION 1	159168	196280	173926	18576	207747	130.2
3.	CENTRAL REGION, of which:	81065	100051	88253	95354	106679	131.5
4.	ALBA	8487	10116	9208	10119	11004	129.6
5.	BRASOV	25054	32262	27106	29285	32302	128.9
6.	COVASNA	4688	5674	5317	5219	5373	114.6
7.	HARGHITA	7197	8848	7637	8012	8348	115.9
8.	MURES	17137	21797	19593	20489	24040	140.2
9.	SIBIU	18502	21354	19392	22230	25612	138.4

Source: - Romanian Statistical Yearbook 2012, National Institute of Statistics ; Highlights regional economic and social -Territorial statistics, 2010, 2012, 2013, National Institute of Statistics;

-Own calculations

The smallest increase was in Covasna (+14%) in 2011 compared with 2007. The turnover achieved in the Central Region of active local units, offers investors important information about the evolution of economic activity in the region and highlights the potential for the economic development.

In Tables 7 are presented gross investments in the period 2007-2011, in the Central Region of Romania. The analysis finds significant increases in gross investments in 2011 compared to 2007 for the counties of Mures (+ 698%) and Sibiu (+ 470%).

In 2011 compared to 2007 are registered decreases n the following counties, as follows: Brasov (-47.74%); Alba (-40.57%); Covasna (-32.14) and Harghita (-28.73%).

In the Central Region in 2011 were registered the most significant gross investment in these areas: mining and quarrying (34,016,000 USD); manufacturing (4.080 million); transport, storage and post and courier activities (1,824,000 USD) and trade (1.640 million).

Table 7

Gross investments evolution, period 2007-2011

- million lei current prices-

No.	Specification	2007	2008	2009	2010	2011	2011/2007 (%)
1.	ROMANIA-TOTAL	141397	143314	99928	94673	143530	101.51
2.	MACROREGION 1	28651	27724	20824	15430	53904	188.14
3.	CENTRAL REGION, of which:	15622	15680	11388	8635	44966	287.87
4.	ALBA	1671	1510	1203	1149	993	59.43
5.	BRASOV	6208	6406	4987	2687	3244	52.26
6.	COVASNA	501	543	352	321	340	67.86
7.	HARGHITA	1208	1213	647	654	861	71.27
8.	MURES	2249	2363	1593	1662	17953	798.27
9.	SIBIU	3785	3645	2606	2167	21575	570.1

Source: - Romanian Statistical Yearbook 2012, National Institute of Statistics ; Highlights regional economic and social -Territorial statistics, 2010, 2012, 2013, National Institute of Statistics;

-Own calculations

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In the Central Region in 2011 were registered the most significant gross investment in these areas: mining and quarrying (34,016,000 USD); manufacturing (4.080 million); transport, storage and post and courier activities (1,824,000 USD) and trade (1.640 million).

Table 8 present the evolution of the investments net in 2007-2011, in the Central Region. It easily finds that, net investments decreased in 2011 compared to 2007, both nationally and in the Central Region. The largest decrease was recorded in Harghita (-41.57%) and the smallest decrease was observed in Sibiu (-19.06%).

Table 9 shows the evolution of local units' active people in the Central Region in the period 2007-2011. In 2011, the employees of active units in the region were 504,723 people, representing 12.78% of the number of employees in Romania. During 2007-20011, this indicator had an oscillating evolution at both regional and county level. In 2011 compared with 2007, the Central Region had a decrease (-11.49%) in the number ofemployees. The smallest decrease was recorded in Sibiu (-4.79%) in 2011 compared to 2007.

Table 8

Evolution of net investments, period 2007-2011

- million lei current prices-

No.	Specification	2007	2008	2009	2010	2011	2011/2007 (%)
1.	ROMANIA-TOTAL	80672	85239	62460	59035	72779	90.22
2.	MACROREGION 1	17812	16939	13884	10195	13332	74.85
3.	CENTRAL REGION, of which:	9152	8942	7790	5343	6836	74.69
4.	ALBA	1150	1074	825	762	785	68.26
5.	BRASOV	2717	2668	3248	1402	2105	77.48
6.	COVASNA	401	448	277	214	263	65.59
7.	HARGHITA	830	782	325	316	485	58.43
8.	MURES	1525	1697	1167	1138	1151	75.48
9.	SIBIU	2529	2273	1948	1511	2047	80.94

Source: - Romanian Statistical Yearbook 2012, National Institute of Statistics ; Highlights regional economic and social -Territorial statistics, 2010, 2012, 2013, National Institute of Statistics;

-Own calculations

Table 9

Evolution of employees, period 2007-2011

- persons -

No.	Specification	2007	2008	2009	2010	2011	2011/2007 (%)
1.	ROMANIA-TOTAL	4,436,235	4,533,086	4,075,959	3,829,840	3,948,498	89.01
2.	MACROREGION 1	1,129,230	1,158,305	1,033,559	977,469	1,014,275	89.82
3.	CENTRAL REGION, of which:	570,218	579,954	516,075	486,831	504,723	88.51
4.	ALBA	7,002	69,520	61,442	56,153	56,153	79.09
5.	BRASOV	168,006	170,836	151,811	143,954	149,279	88.85
6.	COVASNA	38,844	39,882	36,324	32,877	33,511	86.27
7.	HARGHITA	63,860	66,766	57,595	53.593	55,125	86.32
8.	MURES	114,839	11, 980	103,181	97,383	99,139	88.33
9.	SIBIU	113,667	11, 970	105,722	102,871	108,218	95.21

Source: - Romanian Statistical Yearbook 2012, National Institute of Statistics ; Highlights regional economic and social -Territorial statistics, 2010, 2012, 2013, National Institute of Statistics;

-Own calculations

The largest decrease was recorded in Alba (-20.91%) in 2011 compared to 2007. In the Central Region fields with the largest number of personnel in 2011 were as follows: manufacturing (193,404 persons), trade (104,406 persons), and construction (49,242 persons), real estate (43,599 persons) and transport (40,130 persons).

Conclusions

The main economic indicators in the Central Region of Romania show the following conclusions:

-balanced economic structure, which has three major sectors: primary; secondary and tertiary. This led to the framing of the Central Region, among the most representative regions of Romania;

-increase foreign direct investments, which directly contribute to increasing regional competitiveness;

-investments were directed mostly to economic sectors such as wood processing industry; machine industry; construction materials; food;

-GDP increased from 49,416,700,000 USD, current prices in 2007 to USD 67,240,400,000 in 2012;

-economic polarization tend to the following counties: Brasov; Sibiu, Mures;

-enhancing economical disparities between urban centers and small towns;

-increased turnover of 81.065 million lei current prices (in 2007) to 106,679,000 lei current prices (year 2011);

-lower net investment of 9.152 million (2007) to 6.836 million lei in 2011;

-decrease the number of employees from 570,218 people in 2007 to 504,723 people in 2011;

-emergence of clusters in the following fields: food; woodworking; electrical, etc. These clusters will lead to intensification of economic development on the one hand, and on the other hand will help increase value added.

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STUDY ON SUSTAINABLE DEVELOPMENT IN SOUTH-MUNTENIA REGION

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Abstract

This paper enhances the role of the sustainable development concept and shows the impact of it on human society in the new economic, social and ecological challenges. It is known that sustainable development contributes to solve many issues such as biodiversity conservation, climate changes, limiting the use of chemicals. Starting from 1997, sustainable development concept is an important objective of EU. Romania as member of EU adopted National Strategy for Sustainable Development. In this order, the paper contains an analysis of the main indicators in South-Muntenia Region. The indicators are approached in order to emphasize the sustainable level development in this Region. This study is based on the National Institute of Statistics database.

Keywords: GDP ,sustainable development, South-Muntenia Region

JEL classification: O1; O18; Q01

Introduction

This scientific study highlights a representative theme regarding the development at regional level, passed for the directions of the European Union.

The concept of sustainable development is a multidimensional one, which appeared 30 years ago, when there were intensified some problems of resources reduction and environment (Pohoață, I., 2000, p.9).

A representative definition for sustainable development was given by the World Commission on the Environment and Development in the paper "Our common future". In this report, the concept of sustainable development represents that way of development which permanently aims to comply with the present necessities, without endangering the chances of future generations concerning the satisfaction of own needs (www.mmediu.ro).

Sustainable development involves many aspects, but the most important ones are, as follows: reasonable and balanced development; social cohesion and inclusion; a high degree of employment; environmental protection and a rational usage of natural resources; the enhancement of international cooperation in order to promote world sustainable development; a coherent policy that directly lends to the organization of an open politic system (www.oirposdru-vest.ro).

It is important to take into account an essential aspect represented by the fact that the sustainable development will become a constant image of social and economic policies in every member state (Pohoață, I., 2000, p.10).

Nowadays, there can be found series of specific indicators for sustainable development which pursue the aims established in the National Strategy for Sustainable Development.

South- Muntenia Region is the central point of this analysis and according to the hierarchy realized by the European Community, it comes under the category of underdeveloped regions, from the economical point of view. This framing was possible because within this region there was obtained a GDP per capita lower than 75% in comparison with the average of the European Union (www.adrmuntenia.ro).

Methodology and data sources

In order to realize this study, there were used data of the National Statistical Institute and Romanian Prognosis Commission. A significant contribution for writing this paper was represented

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by consulting some specialty books and recent studies. Taking into account the level of sustainable development from a certain area, one could evaluate it on the basis of some indicators, including: gross domestic product; gross domestic product per capita; employment rate; the number of employed persons in research-development activity; monthly gross average wage. The statistical methods which were used in this study in order to analyze specific indicators for sustainable development were usual ones.

Results obtained

It should be specified the fact that there are disparities both for regions' level and within a certain area. Regional disparities generate effects which are not benefic for the national economy. There were identified certain effects with a major negative impact over the economy, such as: the delay of economic growth, achieving in some cases the blockage of this increase; the accentuation of inflation; high costs for supporting disadvantaged regions (Otiman, P. I., 2006, p 226).

In accordance with the European Union's orientations, one must calculate the world development indicator, in order to determinate regional disparities (Beciu, S., 2013, p. 30).

The Gross Domestic Product represents the main macroeconomic aggregate specific to national accounts and with its help, one can appreciate the economic evolution for an area of development, as well as the one of the counties that form a certain region.

In table no.1 one can find the evolution of the Gross Domestic Product within the South-Muntenia area, during the period 2007-2011. The GDP records a positive evolution at regional level, from 52005.4 millions RON (in 2007) to 69894.9 millions RON (in 2011).

Within the area, during the reference period of time (2007-2011), the GDP, expressed in absolute values, had an oscillating evolution.

Table 1

Evolution of GDP in South- Muntenia Region , period 2007-2011

- million lei current prices-

No.	Specification	2007	2008	2009	2010	2011	2011/2007 (%)
1.	Total Region	52005.4	64535.4	65141.8	66114.8	69894.9	134.3
2.	Argeş	14085.1	16759.1	17545.5	16601.7	16731.1	118.7
3.	Călăraşi	3175.5	4653.2	4255.5	5382.2	5499.2	173.1
4.	Dâmboviţa	8055.2	9312.2	9154.5	10248.9	10322.8	128.1
5.	Giurgiu	2683.2	3640.3	3905.6	5274	5398.5	201.1
6.	Ialomiţa	3305.3	4664.9	4550.8	4821.9	5387	162.9
7.	Prahova	16087.8	19714.5	20061.5	18200.3	20718.5	128.7
8.	Teleorman	4613.3	5791.2	5668.4	5585.6	5837.8	126.5

Source: National Institute of Statistics, TEMPO-Online, www.insse.ro, 2014
-own calculations

One can note that those seven counties had a different contribution to the GDP. Prahova and Argeş counties are in the top of classification because they realized 29.6% in 2011 and 23.9% of the regional GDP. On the opposite side there are the counties which had a lower contribution in order to realize the regional GDP, as following: Giurgiu (7.8%) and Ialomiţa (7.7%).

These results highlight a different economic development within the region. An important factor which directly contributes to the economic development is represented by the attractiveness degree for foreign investors.

In table no.2 is presented a prognosis of the GDP evolution in South- Muntenia Region, for the period 2015-2017. In this area there is anticipated a growth of 11.4% at regional level. In Prahova county, one may estimate for the year 2017 the biggest GDP, with a value of 26833 millions RON in current prices. The favorable evolution of this indicator is determined by the significant contribution given by the industrial activity in this county. The lowest value of GDP is estimated in the Ialomita county- 5387 millions RON (2017). It is mainly due to the agricultural profile of this county, unlike the other ones.

Table 2

Assessments on the evolution of Gross Domestic Produsc within SOUTH- MUNTENIA Region, in 2015-2017

- millions RON, current prices-

No.	Specification	2015	2016	2017	2017/2015 (%)
1.	*Total Region*	87442	92252	97467	111.4
2.	Argeş	23077	24419	25878	112.1
3.	Călăraşi	6845	7196	7583	110.7
4.	Dâmboviţa	12898	13598	14357	111.3
5.	Giurgiu	6802	7159	7554	111.0
6.	Ialomiţa	6417	6744	7105	110.7
7.	Prahova	24047	25397	26833	111.5
8.	Teleorman	7357	7740	8158	110.8

Source: - National Prognosis Commission- The projection of main economic and social indicators in TERRITORIAL PROFILE until 2017, November 2013, www.cnp.ro

-own calculations

In table no.3 is presented the evolution of GDP per capita within South- Muntenia Region, during the period 2007-2010. This indicator is one of those indicators that highlights in a clear and precise way, the regional disparities.

In 2010 there was a growth of GDP/capita with 28.7 % in comparison with 2007 at regional level. Argeş county is the only one in this region which was included in the top of the most developed 10 counties in Romania, in 2010 (www.adrmuntenia.ro).

In the analyzed period, South-Muntenia Region records an economic development in absolute terms. Despite this fact, one could find that this region fails to recover the difference in proportion with the national average (www.infopolitic.ro). Short-term prognosis does not indicate the recovery of existent gaps.

In table no. 4 is presented the employment rate on age groups in South- Muntenia Region, during 2008-2011.

Table 3

Evolution of GDP per capita in South- Muntenia Region, during 2007-2010

-RON/capita -

No.	Specification	2007	2008	2009	2010	2010/2007 (%)
1.	Romania	19315.4	23934.6	23341.4	24435.9	126.5
2.	South Region	15757.8	19648.3	19913.7	20288.2	128.7
3.	Argeş	21012.3	26033.1	27377.6	25974.4	123.6
4.	Călăraşi	10070.8	14836.8	13601.1	17256.3	171.3
5.	Dâmboviţa	15482.7	17542.1	17261.1	19345.5	124.9
6.	Giurgiu	9340.2	12883.6	13888.6	18828.0	201.5
7.	Ialomiţa	11514.5	16156.9	15813.5	16802.2	145.9
8.	Prahova	19799.7	24111.7	24595.5	22390.9	113.0
9.	Teleorman	11611.8	24111.7	24595	22390	113.0

Source : -National Institute of Statistics, TEMPO-Online, www.insse.ro ,2014

- Socio-economic analysis of South Muntenia, February 2013, www.adrmuntenia.ro

-own calculation

Analyzing the data, one could find a decrease of the employment rate, from 61.1% (in 2008) to 58.5% (in 2011) for the age group of 15-64 years old. This decreasing trend is also maintained for the age group of 15 years old and over it, reaching in 2011 a percentage of 50.3% in comparison with 52.8 % (in 2008).

Table 4

Employment rate in South-Muntenia Region, during 2008-2011 (%)

2008	2010	2011
15-64 years old- Total		
61.1	59.7	58.5
15 years old and over it-Total		
52.8	51	50.3

Source: - Socio-economic analysis of South Muntenia, February 2013, www.adrmuntenia.ro

The reduction of employment rate was mainly given by the economic crisis and the departure of some important investors in other countries where the taxation is much more reduced. Employment degrees are low in counties such as Giurgiu, Teleorman, Dâmboviţa and Călăraşi.

In table no.5 is presented an evolution of the employed persons in the field of research-development activity both at national level and South- Muntenia area, during 2007-2012. This indicator is part of territorial sustainable development indicators used both at the European Union level and national one.

At national level, after the analysis, one could estimate an oscillatory evolution of personnel in this domain, within the analyzed period of time. In 2012, one could observe an insignificant growth of the employees in this sector, in comparison with 2007.

In South- Muntenia Region, the number of personnel in the research-development field recorded a decrease from 4376 (in 2007) to 3236 (in 2012). In counties such as Giurgiu, Ialomiţa and Teleorman there is recorded a very small number of employees in the research-development field. This is mainly due to the loss of funds for encouraging this activity field.

Table 5

Employees in research-development activity at the end of the year at national level and within South- Muntenia Region, during 2007-2012 (number)

No.	Specification	2007	2008	2009	2010	2011	2012
1.	Total	42484	43502	42420	39065	42363	42674
2.	Macroregion 3	24736	25850	23253	20475	24487	25138
3.	South Region	4376	4484	3676	3543	2253	3236
4.	Argeş	2607	2575	2424	2333	1165	2130
5.	Călăraşi	331	326	302	304	420	340
6.	Dâmboviţa	320	394	362	345	365	353
7.	Giurgiu	7	6	1	-	-	55
8.	Ialomiţa	1	3	11	8	3	-
9.	Prahova	1087	1158	556	533	277	335
10.	Teleorman	23	22	20	20	23	23

Source : National Institute of Statistics, TEMPO-Online, www.insse.ro , 2014

In table no. 6 one could observe the evolution of the average gross monthly wage within the South-Muntenia region, during 2007-2013. This indicator records at national level an increasing trend for the analyzed period.

In South-Muntenia region, the average gross monthly wage recorded an increase from 1295 RON (2007) to 2011 RON (2013). The most significant growth has been recorded, as it was expected, in Arges county (+68.4%) in 2013 in comparison with the reference year. The most reduced growth has been recorded in Ialomiţa county (+44.8%) in 2013 in comparison with 2007. Also, here has been recorded the lowest average gross monthly wage with a value of 1695 RON, in 2013. In this county, low wages could be explained by the reduced employment degree and the low added value, realized in the main activity fields.

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Table 6

Evolution of average gross monthly wage in South- Muntenia Region, during 2007-2013 (lei)

No.	Specification	2007	2009	2011	2013	2013/2007 (%)
1.	Total	1396	1845	1980	2163	154.9
2.	Macroregion 3	1656	2216	2486	2699	162.9
3.	South Region	1295	1748	1813	2011	155.2
4.	Argeş	1346	1858	2021	2267	168.4
5.	Călăraşi	1114	1509	1530	1703	152.8
6.	Dâmboviţa	1331	1664	1717	1939	145.6
7.	Giurgiu	1246	1717	1695	1831	146.9
8.	Ialomiţa	1170	1524	1575	1695	144.8
9.	Prahova	1380	1894	1925	2125	153.9
10.	Teleorman	1118	1519	1570	1708	152.7

Source: National Institute of Statistics, TEMPO-Online, www.insse.ro 2014
-own calculation

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Conclusions

- South-Muntenia Region was included, at national level, in the category of the less developed areas from economical point of view because it realized a GDP lower than 75% in comparison with the European Union average. This was a result of the area's agricultural profile and of the rural predominance that does not represent a high degree of attractiveness for foreign investors or for native ones.
- In South-Muntenia region, during the analyzed period, the indicators of territorial sustainable development had an oscillating evolution from one year to another. Arges and Prahova are the counties where were recorded significant positive evolutions of the indicators that were taken into consideration.
- In 2010, Arges county was included in the category of the most developed counties in Romania, from economical point of view.

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